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ON THE TREATMENT OF PARALYTIC CLUBFOOT.

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The particular object of this paper is to call attention to a somewhat little known, or rather little practiced, line of treatment for paralytic clubfoot. Other types of clubfeet always receive some form of treatment with greater or less success, depending to a considerable extent upon the persistence with which some definite plan of treatment is followed; but the parents who bring a child with paralytic clubfoot are too often told to try "electricity," or, the child will probably "grow out of it," by the medical practitioner, and "nothing much to be done" by the surgeon, or worse still sent to the instrument maker for an indeterminate "brace." When I promised a paper on the subject some months ago, it seemed quite apropos, for, by reason of a severe epidemic of antero-polio-myelitis, which ran its destructive course in this state one to one and a half years ago, a great many children suffered paralysis, and will soon be appearing with various degrees and forms of paralytic clubfoot, depending upon the extent and location of their lesions.

Since beginning the paper, however, some good articles have appeared upon the subject, notably, one on "Tendon Transplantation," by Waterman, of New York, to which article I refer you for a splendid and correct account of its history and indications; for the subject of tendon grafting is really the theme of my remarks, it being especially the method of treatment of paralytic clubfoot to which your attention is called. It was first brought to my notice by a paper on "Tendon Grafting," from Goldthwaite, some seven years ago, but a trial in several cases did not secure the expected results. Some cases were not satisfactory from the start; others, while all that could be wished at the beginning, subsequently relapsed. Later experience has taught me, however, that the latter probably tore away, or the delicate tissues were elongated from being worked too soon, with no mechanical assistance; while the former were unsatisfactory because good judgment was not used in the selections of the tendons transferred.

I think, also, that I did not too well appreciate the pathological conditions, and expected too much—that I was intending to make "good feet," and not simply "better feet;" and, again, at that time, we thought it useless to try to use a tendon whose normal function was not correlative to its proposed new action, that is, whose normal function was not somewhat similar to that of the paralyzed muscle, whose action it was hoped to replace. At present we can count on a gain in position in four ways: By increase in power on the paralyzed side, from direct transference; by diminished power, which was a direct cause of deformity, from the stronger side; by a splinting or supporting action from the extra tendons or tissues on the paralytic side, even when having little or no normal function; by a gain in circulation and consequent muscular power, from holding the foot in a better position, which makes the muscles work at a better mechanical advantage, as well as prevents the overstretching of weak or damaged muscles.

It can be accepted that muscles which were paretic, and consequently elongated, will, after an operation that results in better position and function of the foot, develop and gain in size, appearance, and strength; the circulation will be obviously improved and the atrophied member rapidly evolute. It appears, also, that a muscle which shares a coordinate action with another muscle or group will, after this second muscle or group, become paralyzed, not get the same centrifugal stimulus as before, with resultant partial degeneration; and, later, if arranged to partake in a coordinate function with, perhaps, another muscle or group, will get better nutrition and increase in power, with its increase in cerebral impulses. It can now also be accepted beyond question that a muscle can be trained to differentiate its actions, and can and will single out separate functions or application of its force in response to cerebral will, readily so when the new action is more or less coordinate to its normal function, but still definitely so when the new action is different or opposite to its power as previously applied or exerted. It will, even in response to steady methodical training and definite repeated cerebral impulses, develop two separate and distinct actions, that is, become both a flexor and extensor of the foot, or an invertor and evertor.

The deformities to be considered as having place in these operations are chiefly those dependent upon antero-polio-myelitis, also those due to spastic paraplegia and diplegia, and we must at all times keep in mind the character of the paralysis, as well as its extent—whether it partakes of the spastic type or of the poliomyelitis type; for while in poliomyelitis there is particulate destruction of the nervous elements, with abolishment of its dependent function, in Little's disease there is often no real paralysis, but rather a loss or abrogation of the coordinating impulses. The need here is not as in deformities due to poliomyelitis palsy, to reinforce or recreate function in a paralyzed muscle or group, but rather to balance or equalize motor power, which, owing to the extreme action of the reflex centers, are apt to excite in unison groups of muscles having different actions, which, of course, precludes any delicacy or certainty of movement.

Cases in which practically all of the leg muscles are paralzed are not to be considered under tendon transplantation, for frail joints can only be given stability by some bone operation, as arthodesis or arthrectomy.

To gain any success, some one group of muscles must have a fair amount of power. The promising cases are those in which the innervation of some one group has been lost, but with the remaining groups unimpaired or only very slightly impaired. In selecting the tendons for transference, wherever possible the paralyzed one should be replaced by some other whose action is closely allied, not only because it is usually a neighbor and presents less difficulties, but also because restoration of voluntary power is more quickly attained. This, however, is not an essential feature, for, as before said, muscle function can be trained. We aim at equalizing the remaining power to the best advantage, after which the systematic training in a better functionating position will improve the circulation, favor nutrition, and develop size and power. We deprecate in poliomyelitis deformities always the simple cutting of tendons, which aims to equalize power by weakening the stronger side, but rather we endeavor to modify the application of force by conserving what power remains, and using it to the best possible advantage. This rule of conservation of power, while absolute in poliomyelitis paralysis, is perhaps not so essential in spastic deformities, for here section of tendons in the thighs often gives good results; but lately two instances have been brought to my notice in which section of deforming tendons, while giving satisfactory results for some time, later resulted in deformities of the opposite class. Good results demand correct diagnosis of the muscle conditions, to which end no pains are too great, and to which must be added shrewd judgment in the tendon transference. A well-innervated muscle is of a deep red color, a paretic muscle is from pale rose to red, while a paralyzed muscle is decidedly yellowish; hence it is contended that it is advisable to make the operative incisions long enough to bring the muscular fiber into view, in order that the clinical opinion of the functionating muscle value may be squared by its appearance before the grafting is made.

This step is often wise, when the knowledge can be gained by no great extension of the incisions, but this should not be carried too far; increase of wound extent adds to infection danger, and this should not be courted in tendon surgery, while a fairly practicable working knowledge of the muscular condition can be obtained by the muscle resiliency. To estimate this, gentle traction is made upon the proximal side of the tendon, and when the slack, obtained on relief of the tension, is at once taken up, it can be safely concluded that there is a good red muscle above; when it moves sluggishly, the attached muscle is probably paretic; and when tendon drags limply when released, its muscular power is nil.

The simple suturing of the tendons is not sufficient, but when possible the end of the one should be passed through a slit in the other, the extremity should be cut diagonally, and this cut end fastened by quilted sutures to a serrated or erased surface on the other. Several other methods of suturing the tendons are in use, and are preferable in cases where it is difficult to get surplus tendon, but the manner described, and which, I think, was devised by Goldthwaite, is satisfactory, and I believe to be preferred when it can be readily accomplished. The graft can be made by dividing the tendons of both muscles, and suturing the distal end of the paralyzed tendon to the proximal end of the tendon which is to contribute the power. The proximal end of the paralyzed tendon can then be dropped, or, better, sutured to the distal extremity of the healthy tendon; for, although we get no contractile power therefrom, we can expect, if desired, the support offered by a continuous fibrous structure. Again, we can divide the healthy tendon, and graft its proximal end into the tendon of a weakened muscle, or divide the tendon of a paralyzed muscle, and graft its distal extremity into the continuity of a healthy tendon, or a slip can be taken from a healthy tendon and grafted into the paretic or paralyzed one, or a tendon can be detached, with the periosteum, from its insertion, and applied to another tendon, or a new insertion made for it, whence its power can be more advantageously exerted. All of these methods give good results in the properly-selected cases, and should be judiciously chosen with reference to the available power, and how it may be distributed, to secure the best possible result in a given case.

For suture material fine silk or fine chromicized gut are best; and while the sutures are being placed the parts are held in an overcorrected position, and the tendons are sutured, with just enough tension to maintain a normal position, from the tonicity and resiliency of the transferred structures; for we aim that, after repair has taken place, the muscle shall at once be in condition or position to functionate, and neither have to be elongated nor retracted before coming into play. The deformed parts still being held overcorrected, the tendon sheaths are, when possible, separately stitched over the tendons, and the external wound closed, the extreme position then being secured with a plaster-of-Paris splint, in order that perfect rest and freedom from tension shall be obtained, until thorough repair is accomplished. Healing should be prompt, yet the dressing and splint had better remain from four to six weeks.

What can be obtained? What results expected after such tedious work? Has the patient still to wear special shoes or braces? We do not succeed in making normal structures out of badly paralyzed muscles; not perfect feet, but certainly much better feet. It must be considered as a valuable supplemental procedure and not as a curative one. The children often still have to wear braces, but they get an easy, almost natural gait, where before they had a forced, labored gait. The brace when worn is light, simple, and cheap, where before it was heavy, complicated, and rather expensive.

I can, perhaps, better explain by citing details of a single case in which a good deal of work of this character was done.

A boy twelve years of age, with diplegia of the cerebral type, and, as often happens, without excessive cerebral development. He had tulipes equino varus paralytica of right side, which was noticed when an infant (and which was increasing), due to paralysis of the peroneal and common extensor groups. The foot was small, cold, cyanosed, and the whole limb was about 3 cm. shortened. Since able to walk the boy had worn special shoes and braces, yet the deformity had persistently increased, and he was walking on the outer side of foot and ankle. The boy also had complete paralysis of the supinators and extensors of the right forearm and hand, with paretic flexors of the fingers, yet with wrist flexors and pronators strong and powerful. To remedy the foot deformity, after some fasciotomies and manual correction, the tibialis anticus tendon was detached from the metatarsal cuneiform joint, and grafted into the common extensor tendons. A slip (about one-third) of the Achilles tendon was split up to the muscle, and attached to the peroneus longus. In short, an attempt was made to furnish an extensor and a pronator, decrease the supinators and arch supporters, and weaken the group which produced the equinus. The boy went home in a few weeks, wearing a shoe built up on outer side of sole, and having a simple steel bar on outside of leg, with a lock at ankle joint, to limit plantar flexion, and could walk well. A suggestion at that time of possible aid to the hand brought the boy back in a few months. The hand was strongly wrist-flexed, ulnar-flexed, and powerfully pronated, with sprawled fingers. It was cold, atrophied, valueless, and a palpable deformity. Attempts at flexion were of no avail, except when made synchronously with the other hand, and then resulted on the paralyzed side in.

stronger pronation, flexion at elbow and at wrist, and rotation inwards from shoulder; then persistence brought rotation outwards from shoulder, with elbow, wrist, and forearm fixed as before.

Operation.—Incision along inner border of supinator longus, at middle and upper third of forearm, pulling the supinators outwards, immediately exposed the pronator radii teres, a very large, deep-red muscle, and very tense. This was detached at insertion, taking with it the periosteum, and passed through an opening made in the interosseous membrane, and pulled to outer side of radius; the forearm was then strongly rotated outwards, the periosteum separated, and the pronator tendon inserted, and sutured as far forwards on outer surface of radius as was practicable. This maneuver was rather more difficult than appears, the tendon not being long, and the muscle too thick to do it easily. Next the palmaris longus tendon was severed and dropped, then the flexor carpii ulnaris was detached from the pisiform, and passed through an artificial opening in the interosseous membrane, and sutured to extensor carpii radialis tendons and to ligamentous structures on dorsum of wrist. Wounds closed in usual manner, plaster-of-Paris splint holding corrected position. Healing by first intention, and boy went home in a few weeks, wearing a leather gauntlet, which maintained the new position.

Condition at Present, August 23, 1902.—At rest, the hand hangs normally at side, and, except for rather a helpless look, is not noticeable. The elbow can be flexed with the wrist in normal relation, but somewhat pronated; fingers can be put to mouth and to top of head; there is a little voluntary motion to both wrist and fingers, although not enough to be of any particular value. Still the boy in riding horseback is able to flex the elbow and steady the lines readily with the right hand, which necessitates a position into which it could neither be put voluntarily nor forcibly before the operation. The foot is at present fairly well developed, is warm and firm, and has voluntary motion in four directions, and besides this shows no tendency to revert to its previous deformity; and, with a shoe built up slightly on outer side and with cork sole of 3 cm. to make up for the shortening, walks well. The foot is quite satisfactory. The hand also is satisfactory, as far as deformity is concerned, but not at all so from the standpoint of usefulness. At the operation the thing uppermost in mind was the correction of deformity, and the question of increasing the usefulness of the member was not sufficiently considered. Had the aim been higher, greater success would have been obtained, and a more valuable extremity secured. In the light of the result it appears positive that, if the flexor carpii ulnaris had been used to regenerate the common extensors instead of the wrist extensors, and the palmaris longus instead of being discarded had been applied to reinforce the common flexors, with perhaps the aid of the flexor carpii radialis, the power would have been distributed to much greater advantage, and the boy would have had a hand that would have been vastly better from the standpoint of utility, in addition to its gain in appearance.

It must at all times be borne in mind, however, that tendon transplantation confers purely a transference of power, and does not create any force; hence the procedure is strictly limited to those cases in which the nerve lesion has left some group or groups of muscles partly or entirely unaffected, and a plea for its distributed, to secure the best possible result in a given case.

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1616 California Street.

MEDICAL EDUCATION.

By William F. McNutt, M. D.

Read before Medical Society of the State of California San Francisco, April 15, 16, 17, 1902.

Mr. President and Fellow-Members of the California State Medical Society: At the request of our president I accepted the chairmanship of the Committee on State Medicine, Medical Education, and Hygiene.

To attempt to make an elaborate report on these three almost inexhaustible subjects is a formidable undertaking, which one might well be justified in declining. But, Mr. President, I have always accepted cheerfully to do as best I can any request that has been made upon me by this society. In this instance I was further encouraged by the fact that the other members of this committee are men of the highest qualifications for dealing with these subjects.

Medical education, like Banquo's ghost, will not down. Wherever and whenever in this country medical men are gathered together this subject demands its share of their attention. Perhaps there could be no better evidence that our system of education is yet far from satisfactory to the profession. A great deal has been written and said derogatory to our medical colleges and to our system of medical education (if it can be said that we have a system) in comparison with the medical colleges and medical education in Europe. Our average medical education is inferior and is much more unequal than the education of European countries. At the same time I make the paradoxical statement without any hesitation that it is both better and worse. By better I mean that the Harvard and Johns Hopkins (for instance) medical course consists of eight years, four for the academic or preliminary work, and four for the studies appertaining to medicine proper. This is equal to any course that any European college calls for. Much has been claimed for German medical education on account of the course calling for six or seven years, but two to two and a half years of this course are consumed in preliminary studies, which is also the case with other European medical colleges, but these preliminary studies are not equal to the four years' academic work that is required to graduate at Harvard or Yale, for instance. Consequently a graduate of the Medical Department of Johns Hopkins or Harvard to-day is as thoroughly equipped (if not better) as any graduate of any European medical college. But alas for the inequality of our medical education! While two or three of our colleges require a full academic course before matriculation in the medical department, some of them require no preliminary education whatever, except on paper perhaps, a mere pretext in their announcements.

In Europe medical education is under governmental supervision. In this country it is left to the private speculation of any few medical men who may band themselves together to start a medical college, some with a view to making money out of the scheme either directly or indirectly, others for the glory they think it may bring them. Some of the incorporators of these medical schools may be educated, honorable, and capable men, others uneducated, incapable, and mere schemers for place and pelf. Some of the colleges started by private speculation of this kind may be fairly well or partially equipped for teaching, others not equipped at all,—mere diploma mills. Thus is our system of medical education handicapped, and in the eyes of the world our better medical men have to suffer for the sins of the ignorant and uneducated.

Medical schools spring up like mushrooms all over our country, and most of them are without any supervision by or responsibility to a governing body, each school being a law unto itself, so to speak. In the city of Louisville (200,000) inhabitants), for instance, a city half as large as San Francisco, there are eight medical schools. One can hardly imagine how a sufficient number of medical men can make a living in a city of that size to fill all the professorships. It is quite evident that every medical man in the town must be a professor in some medical school. Polk's Medical Directory gives Missouri eighteen medical schools, and gives the population of the state less than three millions. Of course we get no information from Polk as to the equipments of all these institutions. In the whole Russian Empire (population 130,000,000) there are about a dozen medical colleges. In the United States, with 70,000,000, there are about one hundred and seventy-five. How many more than a dozen of these are thoroughly equipped with a full staff of experienced and capable teachers, as well as every facility for laboratory and clinical work in each department, I am not prepared to say; but I am very much afraid that the dozen would exhaust the number.

As to the preliminary education of the students of all these colleges, I am afraid there is not even half a dozen that call for an academic degree as a matriculation requirement. Dr. W. A. Wells, of Washington, D. C., makes the statement that our best medical colleges require over 4,000 hours total work, while some of the inferior ones demand less than 2,000 hours. In this connection I wish to make a suggestion to the enterprising gentlemen who run medical night schools, of which I understand there are several throughout the country. There being 208 Sabbaths in four years, now if they will convert their medical night schools into medical Sabbath-schools, and teach ten hours each Sabbath, it would give them 2,080 hours total work, more than some of the medical schools are requiring of their pupils, according to Dr. W. A. Wells. Of course a graduate of these medical Sabbath-schools need not necessarily be a Christian Scientist. It can easily be seen that we are obliged to acknowledge that many of our medical faculties and many of our medical colleges are far inferior in equipments to the faculties and colleges of Europe. Their medical schools being under governmental supervision, most of them are provided with laboratories which are supplied with all necessary implements and scientific apparatus for teaching every branch of modern medicine; while their faculties and instructors are not self-constituted teachers, but are carefully selected, by the same governmental supervision, for their scientific acquirements and long experience in teaching. Much time and labor have been expended in making suggestions and in putting into force plans for the betterment of our medical education. But the plan to my mind that has the least merit is that of resorting to state legislation for the compulsory examination of all medical graduates before being permitted to practice.

It is certainly a strange spectacle to see medical men, many of them belonging to the best medical societies in our country, constituting themselves a medical faculty, and charging medical students a fee for educating them, and giving them a diploma, and then going to the state Legislature and asking this laymen body to prevent these graduates, to whom they have just issued degrees, from practicing medicine without a further examination, on the ground, of course, of their unfitness to practice. It is quite impossible for us at the present to obtain national governmental supervision of medical education; might it not be well for us, to preserve our own dignity and self-respect, in asking state legislation for the examination of medical men wishing to practice medicine, to make an exception for those who are graduates of medical colleges that require an academic education preliminary to their four years' course of medical study in a medical college that for teachers and laboratories and clinical facilities is unsurpassed in any country.

In the case of the medical graduates of the University of France or London or Edinburgh, or such German graduates as have passed their state examinations, we should extend to them just such privileges as they extend to our graduates of Harvard and Johns Hopkins, for instance. It is absolutely absurd for any country to pretend that our medical graduates of colleges that require an academic degree for medical matriculation and a four years' course of medicine in medical colleges, than which there are no better equipped in any country, are not as well educated as those of any foreign medical college. With the hundreds of thousands of dollars that have been recently contributed to the Harvard Medical Department by Mr. J P. Morgan, Mrs. Huntington and others, no medical school in the world can be better equipped. We owe it to our self-respect to enforce reciprocity on these lines, and to accept nothing but equality. Perhaps no people have poked fun at the American medical degree to such an extent as the Germans. They have recently in some of their popular plays and novels greatly amused the German public by caricaturing the American doctor with a big diploma under his arm, which he bought for a few dollars. Yet the Germans themselves indulge in selling medical diplomas that are of no more value in their country than the poorest of our own. Not a few Americans, whose medical diplomas would not entitle them to registration in many of our states, have, by presenting these in Berlin and undergoing half an hour's examination, bought a medical degree which they have been able to register in most states in the Union, but which would not entitle them to practice medicine in Germany. I am thoroughly convinced that, if the medical profession would combine when formulating laws for state boards of examiners and exempt from state examinations the graduates of such medical schools as require an academic degree for medical matriculation, it would do more to deprive inferior colleges of their patronage than any of the schemes that have been so far devised. It would force the commercial medical school to meet the higher requirements or close its doors. Why should we not allow a graduate of Johns Hopkins, for instance, to practice medicine in any state in the Union simply on his credentials? What more should the medical profession demand of a medical college than that its students should have an academic degree as a requirement for four years' medical study in a fully and thoroughly equipped medical school.

As inferior, or as positively bad as some of our medical schools are in their faculties, in their lack of laboratory facilities, in their want of clinical material, in their reckless disregard for primary education, still medical education in this country has its bright side,—its star of hope. It has seen its worst days. The improvement in the past twenty-five years has been rapid and permanent. Twenty-five years ago our medical schools were satisfied to grant degrees to young men with no preliminary education after they had taken two courses of lectures consisting of four or five months of each year. To have advanced from this condition in twenty-five years to our present requirements, viz, to a four years' course of seven to nine months each year, ought to be encouraging to the most pessimistic, even if our preliminary requirement is yet far from what it should be in many schools, and only on paper in few of the very worst.

1220 Sutter Street.

PRIMARY CARCINOMA OF THE BODY OF THE PANCREAS.

By Guido E. Caglieri.

Read before the California Academy of Medicine, May, 1902.

G. C., male, 22 years of age, worked in quicksilver mines; has never been ill; does not come from a tubercular or syphilitic stock. He has never abused the use of alcohol, tobacco, or venery. He is of medium stature and regular bony formation. He presented himself to me the first time about 15 months ago, when he complained of considerable epigastric pain, with some flatulence and pyrosis and some tenderness above umbilicus and to the left. Physical examination negative. In view of the fact that he was working in mercury, a diagnosis of toxic gastralgia was made. I then lost sight of the case until eight months ago, when he presented an entirely different aspect, and from this time until death, which occurred six months later, was of the greatest interest. The patient presented an earthy pale, emaciated appearance, and it was evident from the decubitus that he had lost considerable strength. His voice was weak, and his whole appearance was that of a person suffering from a chronic wasting disease. His appetite began to fail him a few months before, and what little he did eat he digested with considerable difficulty. His pains had increased and radiated to his back, causing him to complain greatly. His bowels were quite loose. There was a bad taste in his mouth constantly. He slept fairly well. Examination: temperature 99½ degrees; patient pale and emaciated, with an anxious expression; quite apathetic. Skin quite drawn over muscles and some spots of darker discoloration. Muscles loose and flabby. Bony framework of medium size and regular configuration. Pulse 75, normal. The circulatory and respiratory system absolutely normal. The abdomen was flat, with the exception of a distinct elevation above and to the left of the umbilicus. There were some dilated veins visible beneath the skin. Palpation of the abdomen over the tumor showed it to be a mass of the size of a large orange, smooth and hard, with no nodules perceptible. The tumor is fairly circumscribed and slightly movable, giving a distinct sensation of being adherent to the deep structures. Aside from this mass there were no other palpable changes in the abdomen. Percussion reveals dulness over the whole mass. Normal resonance over the rest of the abdomen. Artificial distention of the colon and stomach shows normal resonant area. The tumor mass is not changed in position by the distention of these hollow viscera. Liver dulness normal. Superior and posterior borders of spleen not displaced; anterior and inferior impossible to make out, owing to proximity of tumor. Feces are light colored and offensive; the movements are loose and amount to six or eight a day; some fat present. The urine is loaded with urates, somewhat diminished in quantity; traces of albumen present; no sugar; nothing special on microscopic examination. Blood examination: hemoglobin 50 per cent (Gower's); reds, 3,500,000; whites, 9,000; few iodiophiles present. Diagnosis: pancreatic neoplasm; exploratory incision was decided on, which was performed under chloroform anesthesia. The examination through the abdominal incision showed a slightly nodular mass, protruding through the gastro-colic omentum and thoroughly adherent to it and the surrounding viscera, springing from the body of the pancreas. After consultation with my friend, Dr. McCone, it was decided not to attempt its removal. The abdomen was closed with through and through silkworm gut sutures and the patient made an uneventful recovery from the operation. From this time until death, which occurred about six months later, his condition grew progressively worse. Some weeks before death his bowel movements became very frequent, blood being frequently present. He likewise vomited blood at intervals of a few days. Penis, scrotum, and legs became edematous; ascites present. Sugar present in urine. Necropsy: only examination of abdomen allowed; excessive emaciation; legs dropsical; abdominal wall shows network of veins; large tumor mass in upper left quadrant of abdomen. On opening the abdomen there escaped a quantity of serous fluid, light brown in color. The neoplasm had become adherent to abdominal wall along the line of the cicatrix. There was a large growth, springing from the body of the pancreas, completely adherent to the surrounding tissues, the mass had ulcerated into the stomach and colon cavities, explaining the origin of hemorrhage from the bowels and stomach. The mass was light yellowish in color and nodular, with some metastatic nodules in the surrounding peritoneum. On cutting into the mass there was a large cavity filled with a semi-fluid debris. Post-mortem diagnosis: malignant tumor of pancreas, probably sarcomatous. Microscopical examination, made by Dr. Ryfkogel, showed section rich in columnar cells with little matrix. Diagnosis: medullary carcinoma.

A case of primary carcinoma of the pancreas, even of the body of the organ, is not of such rarity as to require a special paper on the subject, for a complete review of the pathology and clinical aspect of the subject can be found in any of the larger text-books on internal medicine. But I have reported this case to present the subject for individual discussion, more particularly in regard to the diagnosis, prognosis, and treatment. Early diagnosis of pancreatic tumors, particularly malignant ones, is very difficult, owing to their deep-seated origin, insidious development, and uncertain symptomatology. The text-books state that the symptoms which characterize early malignant disease of the pancreas are gastralgia, glycosuria, fatty stools, emaciation, and earthy discoloration of the skin. In this case the only symptom present at a time when partial extirpation of the organ would have offered any hope for cure was gastralgia, a symptom so often present in so many other conditions as to be difficult to interpret. It would, therefore, be a boon to pancreatic surgery, and indeed to all conditions of the upper abdomen, if this symptom was closely studied by medical men, so as to offer, by its special features in different conditions, some hint as to its probable cause. This may seem impossible.

but when one reflects that nowadays many cases of cholelithiasis are diagnosed simply by the characteristic symptom of pain in this disease, we may have some hope of a probable early diagnosis being made in pancreatic disease. Emaciation is not a great assistance in diagnosing these cases, for gastralgia due to other conditions may produce great loss of fat. Palpation even under an anesthetic, is likewise of little value. Da Costa collected 137 cases, and only thirteen times was it possible to make out the presence of tumor; this refers to cases that involve the head of the organ as well. The prognosis of these cases, as expressed in text-books, is hopeless; from our present knowledge of the subject, based on what has been seen in the past, I fear I must concur; but I consider it the duty of every surgeon to look more closely into the reasons which cause us to declare a condition hopeless, and decide if they are founded on absolutely sound pathological and anatomical reasons, or are they the result of our experiences in the past, handicapped as we frequently are by a cloudy conception of the physiology and pathology of an organ. It is within easy recollection that a case of pyloric neoplasm was condemned to certain death by physicians; but now the surgeon is "occasionally" called in time to greatly benefit the patient, and in a few authentic cases absolutely cure the patient by pylorectomy or complete extirpation of the viscus. Clinical and experimental surgery has shown that extirpation of a good portion of the pancreas is compatible with life, and, stranger still, that even after complete extirpation of the organ, life may continue, as was proved by Franke, whose patient lived five months and a half after this operation. This case was reported in the *Centrablat fur Chirurgie*, July 20, 1901.

The lesson to be drawn from these few apparently unconnected remarks is obvious. Operation for cancer of the pancreas has a place in surgery which we must try to improve, which can only occur if these cases are subjected to exploratory operation early in the advice of the physician. It is he who must study the group of symptoms in these cases in such a way as to make a probable diagnosis early, and then turn them over to the surgeon, who is always ready to divide the responsibility when he is called in at the first suspicion that a condition of this kind is present. I confess that the early diagnosis of malignant disease of the abdominal viscera presents a difficult problem to solve, but if we await the development of a palpable tumor, we may as well await the autopsy.

Let us therefore hope and pray that a willing cooperation on the part of the physician will result in his advising early exploratory incision in all cases where there is a possibility of developing cancer, convincing his patients that it is better to do ten exploratory incisions without finding anything, than one laparotomy and find too much to attempt to relieve.

6 Montgomery Avenue.

ANKYLOSTOMIASIS, REPORT OF A CASE.

By Louis A. Kengla, M. D.

Pathological Report by H. A L. Ryfkogel, M. D.

Read before California Academy of Medicine, November 22, 1901.

Ankylostomiasis, or uncinariasis, is a parasitic disease accompanied by a progressive anemia and digestive disturbances, which, if not checked, are followed by serous effusions, fatty degenerations, and death, due to exhaustion or concurrent disease. Owing to its prominent characteristics, anemia and intestinal disturbances, it has received very many designations, as Egyptian chlorosis, miners' anemia, tunnel-disease, tuntun, cachexia aqueuse, etc., and has often been confounded with beriberi.

The symptoms of this disease were accurately recorded 3,450 years ago by Egyptian physicians. This special form of anemia was recognized in Brazil, the West Indies, and British Guiana in 1648, and among European miners in 1802. The leech-like parasite, however, was not discovered until 1838, by Dubini, of Milan, in the body of a woman who had died of pneumonia. A few years afterwards the discoverer of this nematode found another example. Later Griesinger, then practicing in Egypt, under the name of Egyptian chlorosis, drew the attention of the profession to its relation to a severe form of anemia prevalent among the people. In 1847 Pruner, and in 1851 Griesinger and Bilharz, found other examples of the worm. In 1866 and 1872 Wuchener confirmed the almost forgotten work of Griesinger,[1] and brought the matter once more to the attention of the world. From this date to the present time, a very large number of cases have been reported, especially by Italian physicians and Englishmen practicing in India. In America the first notice of the disease was made by White, of Boston, in 1867.[2] In a recent article, Claytor,[3] quoting Blanchard, refers to unobtainable articles by Chabert and Duncan, of Louisiana, Lyell, of Alabama and Georgia, Heusinger and Giddings, of South Carolina, and Little and Leatherman, of Florida, though Blanchard doubts the correctness of the observations of the last two authors. In 1893 Blickhahn, of St. Louis, reported[4] a case in a German immigrant, a bricklayer, who arrived in this country in May, 1892, and shortly afterwards complained of digestive disturbances, weakness, inability to work, the loss of flesh and color, pains in bowels, and variable appetite until June, 1893, when diarrhea set in, and all the symptoms greatly increased. He was not emaciated, was pale, and suffered severely after taking solid food. In 1894 Herff, of San Antonio, Texas, reported[5] a case occuring in a man born of Mexican parentage in that state. C. H. Tebault, Jr., of New Orleans, in 1899 published a case which he believes originated in that city. Claytor, of Washington, D. C., in June, 1901, reported a case of a boy who had always lived in Virginia and whose history was confirmatory of the observation that if the ankylostomiasis sets in before puberty, the development of the host is retarded. This boy was 19 years old, but had the appearance of a youth of 14. His history demonstrated, also, that the disease is slow in reaching its full development. In October, 1891, Gray, of Richmond, Va., reported[6] two cases in sisters, who were first observed in January, 1898, and in November, 1901, Bogges[7] reported a case of an Italian boy, age 15, an immigrant, who had previously worked in a brickyard at Mersino, Italy.

This cursory glance at the history of the disease shows therefore that its geographical distribution is wide, and that, while it is usually assumed that it is confined almost entirely to tropical and subtropical countries, a sufficient number of cases have been reported to confirm the belief that it has existed for some time in higher zones, or is spreading to these countries. Since its discovery in Egypt, it has been found to be a common disease in the south of Europe, in the tropical and subtropical districts of Asia and America, South America, Australia, China, Japan, the Philippines, the islands of the tropical regions of the Atlantic and Pacific Oceans. With such boundless distribution, and especially since our relations with these countries have been vastly increased by recent events, its importance to us personally and as a matter of universal interest, deserves careful thought. Its bearing on the economic and commercial relations of our people appeals to us equally with all nations; for while the death rate may not be alarming, yet the loss by ill-health and disability, which is more disastrous than death, financially, becomes a matter of some concern, and though the mere existence of the worm in the body does not necessitate a serious condition, its relation to other diseases that are debilitating should be carefully considered. Add to typhoid, malaria, a nephritis, or other conditions the series of symptoms that this parasite is known to produce, it will be found then how serious becomes the mortality, direct and indirect. In Egypt the whole population is practically affected, as proven by post mortem results; in Ceylon its ravages have been more serious than cholera;[8] in parts of India 75 per cent of the population are descimated. In 28 cases of parasitic disease in Fiji, 18 were suffering with ankylostomiasis; in West Africa, out of 23 natives, 22 were infected, etc. It was not, however, until the very fatal epidemic among the men working on the St. Gothard tunnel that the profession realized the importance of this parasite in the human economy.

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[1] F. M. Sandworth, Lancet, London, June 2, 1894.

[2] White, Boston Medical and Surgical Journal, 1867.

[3] Philadelphia Medical Journal, June 29, 1901.

[4] Medical News, December 8, 1893.

[5] Texas Medical Journal, June, 1894.

[6] Virginia Medical Semi-monthly, September 27, 1901.

[7] Public Health Report.

The manner of infection, in all probability, is of wide range and various in character. Filthy water for drinking and general purposes is considered the most frequent method, especially when contaminated by fecal matter. Food, dirty, improperly prepared, eating of mud, geophagia, working in mud or filth, bricklaying, contact with dampness, etc., are means of infection. "In spite of conclusive evidence that the infection takes place through the digestive tract, Sandwith believes that the skin must play an important part in admitting embryos of ankylostoma duodenale and distoma hematobium to the human body. Looss noticed that after a drop of fluid containing ankylostoma embryos had fallen on his hand, there was a sensation of burning followed by redness of the skin. Later he had an attack of ankylostomiasis. He then carefully cleaned the skin of a leg which was about to be amputated from a boy, and allowed a drop of water containing ankylostoma embryos to dry on it. In an hour the leg was amputated, and the skin was examined microscopically, after proper hardening and sectioning. It was found that the embryos had penetrated the hair follicles, and that, so far as the drop spread, scarcely a follicle was free. There is, of course, no proof that the embryos can work their way from the skin into the intestine, but that they can penetrate the skin seems to be proved."[9] This is a noteworthy observation, and renders the study of this class of disease and the anemias of certain climates very important.

The age of the patients ranges from 4 to 60 and over. The highest percentage is found between 20 and 40. Sandwith reports 48 between 10 and 20; 170 between 20 and 30; 140 between 30 and 40; 21 between 40 and 50; 15

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[8] Tropical Medicine, Manson.

[9] Philadelphia Medical Journal, September 14, 1901.

between 50 and 60; and 7 after 60 years. Women suffer less frequently than men. Among the Egyptian tribes, the cleanlier suffer less than the filthy.

The symptoms of the disease are so fully brought out in the case under consideration that it is presented here at some length. J. A. H., aged 34, male, single, height 5 feet 11 inches, weight 138 pounds, was discharged from the army in April as well and capable of duty. Family history: Father living and well; mother died of typhoid fever. Four brothers; one dead by accidental drowning; three living and in good health. Two sisters living and well. Personal history: At age of 18 had scarlet fever, which left him a little deaf; otherwise very healthy until a year after enlistment, which occurred in May, 1898. Was sent to the Philippines in November, 1899, in perfect health, weight 160 pounds; began active service on arrival throughout northern Luzon; was forced to drink from stagnant pools and of water wherever found. About August, 1900, complained of inability to march; of weakness with fever, which was variable as to time and appearance and intensity. Bowel disturbance with diarrhea became more frequent and severe, symptoms would become intensified, then improved. He continued in the field, growing pale and losing flesh. Diagnosis of malaria was made, and treatment given accordingly. There was no improvement. About November 15, 1900, a severe and sudden attack of diarrhea set in, with increased weakness, prostration, and great pallor, so much so that it became the subject of remark by his comrades. Was finally sent to the hospital. His evacuations ranged from 6 to 25 a day, loose and soft, not watery or scalding, coated with mucus, no pain, no blood, except on March 15 on voyage three days out from this port, when he had rather free hemorrhage from bowels; another May 18, slight. There was an uncomfortable sensation in abdomen of soreness, distention, and puffiness; could not wear belt because of its weight and pressure. His temperature was variable, reaching once 106 degrees, and falling rapidly to 99 degrees; seemed to depend upon the character and quantity of food; solids caused much distress, uncomfortable feeling in epigastrium, tenderness, increased the frequency of stool and raised temperature. As a rule, the number of passages did not keep pace with variations of temperature; grew very weak, greatly depressed, and melancholic. Appetite variable, sometimes ravenous; always, however, desire for food, but afraid of the consequences. Had an intense longing for gritty substances, sand, chalk, clay, bismuth, etc. There was dizziness, dyspnea on exertion, palpitation of heart. During months of December and January all symptoms increased, especially pallor, weakness, and exhaustion. Bowel movements same in character and consistency; average about the same as in November, 6 to 20 per day, affected by same cause, of brown, gray, or ashy color, no griping, no tenesmus. The amount of urine remained about normal, though color changed with varying conditions. Temperature ran from 99 to 103 and 104 degrees; pulse 120 or more. Sleep during this time fairly good. Anemia deep and marked. In January edema of legs appeared, became badly swollen, and to a less degree, also, face and hands; all other symptoms slightly increased. Noticed fatty tumors at various parts of body in January. He left Manila February 17, presumably dying. The journey across the Pacific improved his general condition a little; his diarrhea, digestive disturbances, and anemia remained nearly the same. He arrived at San Francisco March 18, and went immediately to the Presidio, where he was under treatment for some weeks, and was finally voluntarily discharged. He then came under the care of several physicians, until May 18, when his condition was as follows: Patient nervous, says he is naturally so; fairly well nourished; no emaciation; extremely pale; complains of severe diarrhea, ten movements this day; great weakness and exhaustion, scarcely able to walk or sit up; dyspnea; palpitation on exertion; temperature 103 degrees; pulse 125; respiration 24. Inspection showed the body of a well-built man; no sign of emaciation; adipose tissue in good quantity and well distributed; skin of slightly dull, muddy color, tinged perceptibly yellow; eye, sclera and conjunctiva pale, pupils equal, no dilation; tongue coated, flabby, indented; muscles of body well developed; slight edema at ankles and very slight of face; face full and round; expression dull, showing distress and uneasiness. Physical examination, May 19: Hair dry and thin; face full; lips, gums, mucous membranes, and fauces extremely pale, almost bloodless; chest well developed; muscles soft, no atrophy; lungs normal; heart, anemic murmur, irritable, possibly dilated; abdominal muscles well developed; no tympanites; extending into right and left hypochondriac and upper portion of umbilical regions, several small nodules the size of an almond, and placques of two or four inches were found in the subcutaneous tissues, which appeared to be collections of adipose tissue; several were also found on the legs, arms, forearms, and back, though small, yet well defined. Looss' report, previously quoted, may have some bearing on these findings. On pressure, marked tenderness was made out in epigastric region and to a less degree over the abdomen; no severe pain could be evinced; appendix, spleen, liver, kidney, and genitals normal; reflexes not tested; sexual desires entirely lost. Patient insists that disease was contracted during campaign in northern Luzon by drinking water from any source, and that many of his regiment suffered from the same symptoms, several of them dying; insists that he passed worms in November and December. No diagnosis was made. Other treatment than bismuth, which he had used for the control of bowel movements, was deferred for the day. May 20, condition very much same; temperature 101½ to 104 degrees; pulse 125; respiration 24; appetite capricious; evacuations 8. Examination of blood and feces requested to determine possibility of malaria or the ameba of tropical dysentery; iron and arsenic ordered, also proper dietary. May 24, condition same; thymol ordered, two grains every two hours, in emulsion, on empty stomach, to be followed by castor oil. May 25, condition much same; pulse same; temperature 101 to 103 degrees; bowels moved 20 times, large, soft evacuations, were not saved as directed; treatment continued. May 26, very weak; continued thymol; some nausea; no appetite; temperature 101 to 104 degrees; respiration 24; pulse 130; evacuations 12, increased by oil. May 28, weak, sweating; distress from thymol, dose reduced; unable to sit up; bowel movement frequent; appetite poor. May 31, as no adult worms had been found, and patient had become so nauseated from thymol, ethereal extract of male-fern was substituted, 1 to 2 drams a day, followed by oil; otherwise condition not improved, weak, and depressed. June 3, patient's expression better; complains of insufficiency of liquid diet; pulse stronger, 120; temperature 101 to 102 degrees; respiration 24; evacuations 10; treatment continued. June 5, expression growing easier; less distress and uneasiness; pulse 120; temperature 100½ to 102 degrees; color seems better; mind clearer; desires food; feels better than for months. June 8, male-fern now given on alternate days, a dram to two drams in four doses, the bowels acting less frequently, even after four or six ounces of the oil. The temperature has shown a tendency to remain lower; highest reached, 101 degrees, except on previous day after taking half a dozen California oysters, it rose to 104 degrees, with pains, cramps, and severe diarrhea. This subsided promptly. Anemia same; pulse going down, ranged between 109 and 120. June 10, bowels would not move. Ordered increased doses of oil; took 8 ounces without effect; highest temperature 101 degrees; pulse 104; respiration 20. June 15, pulse stronger, gaining in fulness; bowels would not move without large doses of oil; temperature has not risen above 100 to 101 degrees; respiration 20; looks better; eye brighter; expression much improved; losing yellowish tinge; pallor of lips and nails improved; but little tenderness over abdomen; muscular power returning; can sit up for an hour; appetite very good; demands food; general improvement marked. June 18, temperature for three days normal in morning and highest in evening, 100 degrees, depending on indiscretion of diet. Feels better than for nine months. Wants to eat everything; smoked first cigaret in a year; beginning to walk around. From this date the patient showed rapid and marked improvement; his general appearance entirely changed; gained weight rapidly; digestion good; anemia much less marked; muscular power returning; appetite excellent; bowels moved regularly, sometimes twice a day; temperature in morning normal, slight rise occasionally in evening; mind clearer and by July 15 was able to go to Los Angeles. Sometime during the first two weeks of August went to Honolulu with intention of accepting a position, but was affected so severely by heat, with increase of bowel movements and weakness, that he was advised to return at once to San Francisco. At present weighs 168 pounds; general appearance good; no digestive difficulties; and, with the exception of a general muscular weakness he feels as well as he ever did, though his blood examination does not sustain this opinion. Besides the ankylostomum, this patient was infected with the tricocephalus dispar, first described by Morgagni in 1781, and later by Gaeze. The symptoms produced are similar to those of the ankylostomum, diarrhea, colic, indigestion. The ascaris lumbricoides was also present. Aug. 20, 1902, patient still unable to do laborious work; dilation of heart well marked; examination of feces shows no eggs or parasites; blood much improved. Since this case was found it is reported that several have come to the Presidio General Hospital from the Philippines, and that one case has been found by the physicians at the county hospital. Dr. Flint reports that he found many cases while doing post-mortem work in the Philippines.

Microscopic Examination of the Feces and Blood by Dr. Ryfkogel.

Dr. Kengla referred his case to me for examination of feces and blood on May 22, 1901. Examination of the feces showed large numbers of the characteristic ova of uncinaria duodenale. In addition a few eggs of ascaris lumbricoides and tricocephalus hominis were found. Enormous numbers of Charcot Leyden and a few hematin crystals were present. Unfortunately the patient, through a misunderstanding, threw away the stool passed after the first dose of thymol, and with it probably the majority of the parasites, since he stated it contained many "maggots." A few eggs still remained in the feces, and, after further dosing with male-fern, examination resulted in the discovery of eight female uncinariæ. The eggs of the uncinariæ and ascaris lumbricoides disappeared after two weeks' treatment with male-fern. Those of the tricocephalus were still present at the last examination. The following table shows the results of the several blood examinations..

Date.	Red Cells per c. mm.	White Cells per c. mm.	Hemaglobin per cent.	Neutrophiles		Eosinophiles		Lymphocites		Large Mononuclears		Normoblasts per c. mm.	Remarks.
				per c. mm.	per ct.	per c. mm.	per ct.	per c. mm.	per ct.	per c. mm.	per ct.		
1901 May 22..........	2,130,000	18,600	15	9300	50	6138	33	2418	13	754	4	338	Poikilocytes numerous; megolocytes few; megoloblasts absent.
July 5. Eggs obtained from feces...	3,735,000	10,000	28	2900	29	4900	49	1600	16	600	6	absent	Fewer poikilocytes.
July 22..........	3,800,000	15,300	40	5049	33	8262	54	1377	9	612	4	absent	
July 31..	4,100,000	24,5c0	44	6320	26	14.210	58	2205	9	1715	7		
Sept. 21.........	4,180,000	13,000	47	4680	36	4070	39	2340	18	910	7		
1902 Jan. 24..........	4,885,000	16,200	56	8910	55	3726	23	2592	16	972	6		
July 30..........	4,940,000	13,400	55	8710	65	1876	14	2278	17	536	4		

It will be noticed that the blood conditions were not essentially different from those usually seen in this disease, the most noteworthy change being the secondary anemia and the enormous increase in the eosinophiles, which, curiously enough, became temporarily greatly augmented a couple of weeks after the removal of the trematodes. The highest number reached, 14,000 per c. mm., surpasses that in any case that I have found recorded. Bulkly reports a case with 72 per cent, but unfortunately no mention is made of the total count, so no idea could be formed of the absolute increase. B. K. Ashford made a careful study of the blood in 19 cases occurring in Porto Rico, where the disease is very prevalent, and found that the red counts ranged from 698,000 to 3,500,000, and the hemoglobin from 10 per cent to 55 per cent. His white counts varied from 1,500 to 18,000. In only one of the cases was the color index increased; in the balance it was diminished; 6 of his cases showed more than 800 eosinophiles per c. mm., the highest number present in his series being 7,600, or 40 per cent, the lowest 29, or one-fifth per cent. Although such figures show that an increase in the eosinophiles is not constantly present in this disease, it probably occurs somewhat more frequently than in infection with other intestinal parasites and less frequently than in trichinosis. The counts in trichinosis are usually higher than those in ankylostomiasis. The well-known relationship between eosinophilia and Charcot Leyden crystals is well illustrated in this case, since in every slide made from the feces these crystals were present in countless numbers. After the expulsion of the helminths they apparently disappeared, but since these are frequently only found after the administration of some drug such as calomel, which dislodges the intestinal mucus in which the crystals may be, and since this was not done,[10] it is possible that a few may still have been present. This point is mentioned on account of the persistence of the eosinophilia, which still remained at the last examination. I will not here enter into a discussion of the origin of the eosinophilia; the most satisfactory in English on this question are "Studies in Leukemia," by A. E. Taylor, and "Histology of the Blood," by Ehrlich and Lazarus. It may be considered as proven, however, that the eosinophilia arises from eosinophilous myelocytes in the bone marrow and pass into the blood stream and to the intestinal mucosa by reason of chemotactic properties of substances produced by the parasite. A description of the eggs and parasite can be found in any text-book on diagnosis or practice of medicine.

J. Warden Stiles has recently described two varieties of the parasite, one of which occurs in Porto Rica, Central America, Mexico, and the southern states, and which he has named unciniariæ Americana, and the other in Europe, Asiatic countries, and Africa, and which retains the name uncinaria duodenalis. The following are the descriptions of the two parasites as set forth by Stiles.

Generic Diagnosis: Sclerostominæ, with anterior extremity curved dorsally; mouth round to oval, opening obliquely, limited by a transparent border, and followed by a chitinous buccal capsule; the dorsal portion of the capsule is shorter than the ventral, and is supported by a conical structure, the point of which sometimes extends into the cavity; at the base of the buccal capsule are found two ventral teeth; toward the inner border the ventral wall bears on each side of the median line chitinous structures or teeth, often recurved in shape of hooks; the inner dorsal wall may also bear teeth. Type species: Uncinaria vulpis Frolich, 1789, in Canis vulpen. Old world hookworm, uncinaria duodenalis (Dubini, 1843), Railliet, 1885, of man.

Specific Diagnosis: Body cylindric, somewhat attenuated anteriorly. Buccal cavity with two pairs of ventral teeth curved like hooks, and one pair of dorsal teeth directed forward; dorsal conical tooth not projecting into the capsule. Male: Eight to eleven mm. long; caudal bursa with dorso-median lobe, and prominent lateral lobes united by a ventral lobe; dorsal ray divides at a point two-thirds its length from its base, each branch being tridigitate; spicules long and slender. Female: Ten to 18 mm. long; vulva at or near posterior third of body. Eggs: Ellipsoid, 52 by 32u, laid in segmentation. Development direct, without intermediate host. Habitat: In small intestines, chiefly in upper part, of man (homo sapiens). New world hookworm, uncinaria (monodontus) Americana Stilen, 1902, of man. Specific Diagnosis: Differs from U. duodenalis chiefly in following characteristics: Ventral, recurved, hook-like teeth are absent from the mouth, their place being taken by a pair of semilunar platen, somewhat similar to U. stenocephala. Dorsal conical tooth projects prominently into the buccal capsule. Male: Dorsal ray of caudal bursa divided to its base, each branch being bipartite at its tip. Female: Vulva in anterior half of body, but near the equator. Eggs: Slightly larger, 64 to 72u by 36 to 40u, in some cases partially segmented, in others containing fully-developed embryo when oviposited. Type Host: Man (homo sapiens), at Galveston, Texas. Type Specimen: No. 3,310 B. A. I., United States Department of Agriculture. —*American Medicine, May, 1902.*

Double and triple infections, such as seen in this case, are common in countries where uncinariasis is prevalent, and in the Philippines have been noted by Strong, who has written an excellent monograph on the intestinal parasites of these islands. Thus the association with tricocephalus as seen in this case is almost constant, and naturally the association of this disease with typhoid and the dysenteries is not infrequent. Sandwith, in an analysis of 173 cases in Egypt, found oxyuris in one-half, ascaris in 15, and tricocephalus in but 2. Giles found it, however, in practically all his cases. No particular effort was made to cultivate the eggs in the present case, but in feces placed in the incubator at 28 per cent the characteristic development could be readily traced to the point where the embryos could be seen within the egg; no free embryos were found. The probable number in this case, judged by the number of ova, was over 1,000. Ernst, of Cologne, reported one case with 2,763 parasites, and numerous observers in describing autopsies report the number as being well in the thousands. The pathologic changes in the disease have been described by Scheube, the most marked being emaciation, soft and fatty myocardium, fatty liver and kidney, and chronic catarrhal gastro-enteritis, the mucosa being infiltrated with enormous numbers of eosinophile cells.

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[10] This is an inaccuracy; he received several doses at this period of treatment.

The most important lesson to be drawn from cases such as this is that, in obscure cases, particularly those accompanied by eosinophilia, a careful examination of the feces for parasites or their ova should be made. The patient whose case is discussed above had been in the hands of several physicians, who overlooked the possibility of infection with uncinaria, and consequently treated the anemia without success.

The diagnosis is not difficult. The hematin crystals (Charcot-Leyden) in the feces gave the first clue to the diagnosis, which was verified by the finding of the eggs of the ankylostomum. Neither did his history nor his general condition point to pernicious anemia. The microscopic and blood examination showed that it was of chlorotic character. In tropical countries, anemia without assignable cause should always be looked upon with suspicion, especially since in the late stages neither worms nor eggs may be found. The normal condition of spleen, liver, and absence of chills, sweating, the character of the fever, and the inability to find the plasmodium malariae, excluded the diagnosis of chronic malarial anemia. He gave no history of true diarrhea, it was a lax condition of bowels; nor was there any evidence of the dysentery so common in tropical countries. No amebæ were found. Quinin and iron gave no positive results. Although Dr. Walker, of Borneo, found this parasite in 100 consecutive post-mortems of cases dying from beriberi, other observers have failed to confirm his conclusions. The parasite was possibly a complication, as beriberi is essentially a neurosis.

The treatment is both prophylactic and medicinal. As it is a parasitic disease, its prevention demands strict hygiene of person, food, and water. The most frequent means of contamination is by fecal matter, but in our own country this is a means of little concern. Drinking water should be boiled. Earth workers, bricklayers, etc., should be especially guarded in infected localities. Medicinal measures are effective. Thymol is regarded by most observers as the specific. Sandwith gives 31 grains at 8:00 A. M., brandy at 10:00, 31 grains again at 12:00, followed by oil. It should be given guardedly when patient is weak and exhausted, on an empty stomach, and in varying doses. The patient should be kept in bed, and no medicine in which thymol is soluble should be administered at the same time, for fear of poisoning. Male-fern is less dangerous, and is used where thymol fails or causes too much depression or too great disturbances of the digestive organs. Oil of peppermint, turpentine, guaiacol have been tried. Convalescence should be guarded, and the return to full diet should be gradual. The treatment used for trichocephalus dispar was high enemas of bichlorid solution, 1 to 10,000, as recently suggested by Dr. Philip King Brown. Patient insisted that he felt much easier after third enema.

INSOMNIA.

By Dr. Francis Crosson, Albuquerque, N. M.

Along with the heat and rush of modern industrial development have come new and strange manifestations of disease not heretofore common in medical and surgical practice. Among these there is perhaps none more frequently encountered to-day by the average practitioner than insomnia. It is not always an easy matter to get behind the cause or causes responsible for the production of this condition; nor need its presence be invariably attributable to pathological factors per se. A form of insomnia now commonly met with can be traced to a purely psychological cause, and the presence of a disease is not necessarily a concomitant. I have had many such cases,—patients refusing to sleep upon retiring. Instead of immediately relaxing mind and body, the mental clock is wound up, so to speak, and free and unrestrained vent given to the thoughts, which are permitted to run wild, traversing in mental introspection a vast field and reviewing an enormous number and variety of subjects, that pass with marvelous rapidity before the mental inspection of the patient. In a very short time this habit becomes fixed. The sufferer makes an effort to overcome the growing and stubborn condition, but the habit is not easily uprooted when once it has taken seed and arrived at the stage of fruition. Try as he will, the victim of this condition will find himself or herself powerless, after a short time, to make any headway against this growing insomnia habit. The mind will seek almost unconsciously in the stillness of the night subjects and distractions of one kind or another to fasten its wild riot upon. The senses become more and more active and alert, until in a spirit of despair the patient suffers himself to relapse into a state of complete wakefulness, accompanied by the peculiar nervous phenomena of this condition, when he or she lies with more or less philosophic resignation upon the sleepless couch, awaiting with anxious expectation the advent of a newborn day. With the approach of dawn, in most cases, a slight feeling of drowsiness occurs, the result, perhaps, of complete physical and mental exhaustion. But, unfortunately for the insomnia victim, this is a poor time to secure the much-needed sleep,—the myriad noises of the day begin now, and increase in volume and variety, until the culmination is reached in the nerve-racking hubbub of our modern large towns and cities.

In attempting to treat successfully such cases as these, certain essentials are obviously required, among the more prominent of which may be mentioned isolation and sequestration from noises of all kinds, complete mental and physical relaxation from business cares, and last, but not least important, the employment of a safe and reliable medicine to produce sleep. The number of drugs employed for such purpose is legion. But few of these are devoid of harm and influence upon the future of the patient, and still fewer are in any sense either efficient or reliable. Like the average medical man, I presume I have run the gamut of many of the more conspicuous hypnotics that have been in use and have enjoyed prominence during the last twelve or fifteen years. Few men to-day care to tamper with the old combinations of chloral and the bromides, while opium and its alkaloids prove of service only in the case of certain persons, and then only in the hands of judicious and wise doctors. The later coal-tar products, while they doubtless served a useful purpose in their earlier career, have been found wanting in many essentials, have never been entirely devoid of direct danger and certain unpleasant sequelæ. About nine months ago I had on my hands three cases of a rather severe type of insomnia. In looking about for a prop to help me carry these sufferers along, I decided to try hedonal, about which I had read some very excellent clinical reports recorded by men of standing and note in Germany. I set about the use of this preparation with all the preconceived pessimism which comes with years of therapeutical experimentation. To eliminate any doubt as to its value, the tests made by me were severe and sufficiently varied in character to satisfy my mind in all essentials. Now, after nine months of careful observation on the action of hedonal, I am prepared to testify to its usefulness in the simpler forms of insomnia, especially those of psychical origin. In the insomnia of advanced tuberculosis it has likewise proved of great value in my hands, securing to the sufferer calm and restful sleep night after night, for weeks and months, without harmful results.

The cases in which I employed hedonal embrace dipsomania, morphinomania, pulmonary and laryngeal tuberculosis, tubercular empyema, acute follicular tonsillitis, pleuritis, hallucinations following ovariotomy, neurasthenia following excessive mental work and severe physical strain. The variety of conditions in which I have resorted to hedonal has been sufficient to enable me to draw some general conclusions in regard to this new chemical compound.

1. I have found it safe to administer hedonal in all the above diseases, night after night, or in some instances upon alternate nights. In my hands its use has not been attended with unpleasant consequences, except in one instance, a gastritis lasting five or six days; but as this patient had been taking heroic doses of heroin prior to my employment of hedonal, I am not entirely satisfied that the stomach disturbance was not as much due to the use of heroin as it was to hedonal.

2. I have not found any indications of cardiac depression following doses of forty grains of hedonal.

3. It seems to be entirely devoid of cumulative effect, and is apparently rapidly eliminated from the system.

4. It produces sleep a few moments after administration, and the number of hours of sleep can in most instances be regulated by the dosage. I have employed hedonal in fifteen-grain doses for forty to fifty consecutive nights, without the slightest deleterious effect upon any of the vital organs or functions. I have made, while using this drug, frequent analyses of the urine, but have failed to find any evil influence upon the function of the kidneys. Hedonal can be discontinued at any time. It creates no habit nor the necessity for any other hynotic to take its place.

PLAGUE CASES 69, 70, 71, 72.

Case 69. Tang Hung Fong, age 35, died Aug. 26, 1902, at 1025 Dupont Street. This case was examined clinically on August 25, and again on the 26th, about two hours before death. Bloody sputum obtained on the 25th showed numerous pestlike organisms, with a deeply-injected pharynx and enlargement of the tonsils. There were no signs of pneumonia. The body is that of a very well-nourished, muscular Chinaman, about 5 feet 9 inches in height, and weighing approximately 175 pounds.

The principal external evidence of pest infection consists in an enlargement of the right cervical lymphatic glands, with a similar but less-marked condition of the left side. Section of the right cervical enlargement shows hemorrhagico-necrotic glands, surrounded by hemorrhagic edema. The same condition is noticed on the left side. The edema extends to the epiglottis and upper part of the larynx, and is most marked on the right side. The circumvallate glands at the root of the tongue and both tonsils are very much enlarged, and show cortical hemorrhages, areas of necrosis, and surrounding edema. The axillary and inguino-femoral glands show cortical injection and enlargement, but there is no surrounding edema. The consistency of these glands is soft. The heart, with the exception of acute myocarditis and a dilatation of the right and left auriculoventricular openings, shows nothing characteristic, save the dilation of the right heart and the distension of the right auricle with very dark blood. The left lung shows an extensive pleurisy, particularly at the base, and for the most part this lesion appears to be a chronic one. The posterior part of the upper lobe of the right lung also shows old pleuritic adhesions. The spleen is enlarged about one and one-half times its normal size, and presents a typical picture of acute splenic tumor. There is, on its upper surface, a capsular lesion indicative of chronic perisplenitis, and scattered over the capsule are fresh deposits of lymph. The pancreas, the suprarenal capsules, the bladder, and the genito-perineal region appear normal. The mesenteric glands are somewhat enlarged and slightly injected. The intestines contain a large amount of mucus. The mucosal vessels are distinct. The kidneys show acute nephritis, characterized by a swelling of the cortex and obliteration in places of the markings, with a deep injection of the pyramids. The liver shows numerous necrotic areas both subcapsular and deep. They are characterized by soft, light yellow centers and deeply-injected borders. Some of those that are situated subcapsularly rise above the surface about one centimeter. The consistency of the liver is soft, there being but little resistance to the knife. The bile passages appear to be somewhat thickened, but nowhere dilated, and they contain large numbers of the opisthorchis sinensis (distomum sinense, spathulatum, endemicum, perniciosum). Microscopy: Smears from the tonsils, the cervical buboes, and the spleen show numerous pestlike organisms, with cocci and other bacilli, the bipolar organisms being in the great majority. Probable cause of death, tonsilar plague.

Case 70. Dong Hip, age 42. Lived at 605 Jackson Street, and worked in the Yick Fung liquor store, at 626 Jackson Street. Had been sick three or four days with fever, preceded by a chill. Death occurred 2:30 P. M., August 30. Incision made in the left inguino-femoral region at 5 P. M. same date, for the purpose of obtaining material for bacterial examination. Pestlike bacilli were found in the smears. Autopsy resumed 9 A. M., August 31. Body that of a well-nourished Chinese male, about 45 years of age. Face suffused and swollen. Sclera injected. Pupils moderately dilated. Post-mortem lividity about head, face, neck, shoulders, and, to a less degree, in the dependent parts of the body. Number of subcutaneous hemorrhages scattered over thorax, arms, and forearms, especially about inner aspect of elbow. These are probably due to counter irritation. No signs of trauma. Slight edema of lower extremities. Several atrophic circular scars, white in center, surrounded by areas of pigmentation, in the skin over the tibia. Glandular enlargement in the left inguino-femoral region plainly demonstrable by both inspection and palpation. When the body was brought to the morgue, this area was covered by Chinese black ointment. Rigor mortis unusually well marked. Glands can not be palpated in the axillary regions nor in the right inguino-femoral region, which may be due to the fleshiness of the individual. Long median incision made. Subcutaneous fat unusually well preserved, quite moist. Subcutaneous blood-vessels slightly engorged. Muscles of thorax rather poorly developed, of a light red color, quite moist. Abdominal cavity opened; clear serum in the most dependent portion. Intestines covered by omentum in upper three-fourths, but not in the lower. Omentum very rich in fat. Intestines moist, glistening, not injected. Appendix vermiformis quite long, recurved upon itself, points outward and backward. Stand of diaphragm, right fourth rib; left fourth rib. Spleen removed easily. Enlarged to about one-third above its normal size, enlargement being about equal in thickness, breadth, and length. Organ of a bluish red color. Capsule tense. Organ firm in consistency, no subcapsular nodules or capsular thickening. Incision made. Cuts extremely easily. Cut surface moderately rich in blood. Connective tissue not increased, pulp slightly bulging. The organ is very friable. Shows all the signs of acute pulpitis of a moderate degree. Thorax opened. Costal cartilages not ossified. Lungs collapse anteriorly. Right lung extends about one finger breadth beyond the juncture of the costal cartilages and ribs. Pericardial area about normal in size. Left lung adherent by soft adhesions to thoracic wall. Mediastinal glands not enlarged. Right lung adherent at apex only. Adhesions firm, and broken with difficulty. Pericardial sac opened. Contains a few cc. of serum. Heart about the size of the fist of the individual. Apex formed almost altogether by the left ventricle. The left ventricle walls soft. There is nothing of especial note on the surface of the heart, except a few small hemorrhages and an increase of fat slightly over the normal. The left ventricle opened. Contains post-mortem clots only. Right ventricle opened; post-mortem clots and small amount of fluid blood. Left auricle contains an equal proportion of post-mortem clot and fluid blood. Right auricle same as left auricle. Mitral valve thickened. Left lung removed. Pleura has not lost its luster; scar about apex of upper lobe. Subpleural hemorrhages and a few adhesions scattered over pleura of lower lobe. Organ about normal in size. Collapses completely. Crepitates throughout. Cuts easily. Cut surface shows blood, air, and serum, about the usual proportions. Old tubercular scar at apex of upper lobe, which has in places undergone calcareous degeneration. In no part of the lung is air absent. Right lung removed. The right lung is the same as the left, even as to the tubercular scar, which has undergone calcareous degeneration. On the left side, in the ilio-lumbar regions, there can be seen a large hemorrhagic area, which extends down through the muscle to the spinal column. The enlarged glands of these regions are pestlike. Left kidney about two-thirds normal size. Fatty capsule very rich, strips off easily. Fibrous capsule removed with slight difficulty; exhibits a red, very granular surface. In this the stellate veins are quite plain. Organ cuts with a grate, surface moderately rich in blood. Cortex diminished in breadth in areas. Contrast between cortex and pyramids well defined. Right kidney similar. Liver about normal in size. Capsule glistening, of a light yellow color, in which the stellate engorged veins show up prominently. The capsule is not thickened, the organ being visible throughout. The consistency is slightly decreased. The lower border thickened and rounded. The capsule tense. Organ cuts rather easily, but with slight grate. Cut surface moderately rich in blood; shows moderate degree of cloudy swelling. Careful search reveals five or six flat worms,—the opisthorchis sinensis (distomum sinense). The mesenteric glands are not enlarged, nor is there any injection of the blood-vessels of the mesentery. The pancreas is about normal in size, consistency, color. Cut surface shows some injection of blood-vessels, but no hemorrhages. The ileum opened for about five inches. Mucosa normal in appearance. Stomach distended with gas. The folds of the mucosa are somewhat hypertrophied, the veins engorged. There are a number of hemorrhages under and into the mucosa. Incision made last night over the left inguino-femoral region, extended. Area found deeply injected; moderately edematous; glands enlarged, hemorrhagic, and showing areas of coagulation necrosis. This condition extends down to the muscles of the thigh. The right inguino-femoral and axillary glands are normal. The larynx and trachea are apparently normal. Microscopy: Smears from the right inguino-femoral glands and from the spleen show numerous pestlike bacilli. Probable cause of death, bubonic plague.

Case 71. Lin Hea, age 35, Chinese woman, died 6 P. M., Sept. 1, 1902, at 827 Sacramento Street. This case was first examined by this office on the afternoon of August 31, and again on September 1. The body is that of a very well-developed Chinese woman, weighing about 140 pounds. Scattered over the body, particularly the chest and abdomen, and to a less degree on the arms and legs, and still less on the face and neck, are numerous hemorrhages confined to the skin, and varying from 1.5 mm. to 4 mm. in diameter. The majority of these lesions are of medium size, and these are darker in color than their larger and smaller associates. A few of the larger areas are ovoid in shape. Post-mortem lividity and rigidity are generally well marked. The left eyeball is missing, but the stump shows no signs of inflammation, and there is no inflammatory evidence in the right eye. The subcutaneous and abdominal fat is abundant. Over the sternum and flexures at the elbows are evidences of counter irritation, the underlying subcutaneous tissues being deeply injected. In the left inguinal region is a visibly and palpably enlarged bubo, which, along with the adjacent tissues, presents all the macroscopic evidence of bubonic plague. The left iliac and lumbar glands are likewise in a characteristic state of pest infection, the surrounding edema being very hemorrhagic, and extending as far as the left adrenal. The spleen is about 14 cm. in length, 5.5 in width, and 3.5 in thickness. The lungs show no consolidations anywhere, and, with the exception of a deep congestion posteriorly, appear normal. The kidneys are somewhat enlarged and show cortical retention cysts. Their cortices are swollen and of light yellowish-gray color. The markings in places are fairly distinct, but in others are almost obscured. The pyramids are injected. The consistency is firm. The left ureter shows hemorrhages into the surrounding tissues. The suprarenal capsules are somewhat swollen, but otherwise appear normal. There are no demonstrable lesions in the pancreas, nor the bladder, nor the mesenteric glands. The liver shows fresh adhesions to the under surface of the diaphragm. At the outer edge of the large lobe is an old scar about 2.5 cm. in length. Section reveals a soft consistency and cooked appearance of the organ. Near the base of the large lobe are one or two areas of small, discrete hemorrhages. The bile passages are somewhat thickened, and in a few of them are found six or eight trematodes of the genus opisthorchis. The portal veins contain yellow blood clots. Microscopy: The pestlike glands hereinbefore mentioned and the spleen show numerous organisms, having the morphological and tinctorial characteristics of bacillus pestis. Probable cause of death, bubonic plague.

Case 72. Leong Chong, age 54, died 10 A. M., September 2, at 810 Jackson Street. This case was not seen clinically by this office. The body is that of a very well-developed, muscular, fat Chinaman, showing on external inspection nothing indicative of the cause of death, save a hemorrhage into the left conjunctiva, and a general suffusion of the face, along with an adduction of the thumbs and a firm contraction of the calves. Sections of the inguino-femoral, the axillary, and the popliteal spaces show lymph glands somewhat enlarged and cortically injected. This is most marked in the left axillary and left femoral regions. The omentum is fat and covers the intestines, which show no lesions. The spleen is about normal in size. The capsule is tense and the cut surface is very diffluent, and shows every evidence of acute splenitis. The kidneys are small, firm on section, and have cortical retention cysts. The pyramids are deeply injected. The liver shows several areas of necrosis and a very few of the oriental liver flukes of the type species opisthorchis sinensis. The bladder is distended with urine. The suprarenal capsules and the intestines and testicles and urethra seem normal. The heart is very flabby, and shows both tricuspid and mitral incompetence. The lungs posteriorly are edematous, and there are nowhere any areas of consolidation. The tonsils are slightly enlarged, and small quantities of pus exude from the crypts. There is no surrounding edema. The lower one-third of the right tonsil is hemorrhagic. The deep cervical glands on the right side are enlarged, the largest being about 3 cm. long by 1½ cm. in breadth. It shows cortical hemorrhages and areas of necrosis. The surrounding tissues for about 7 cm. are hemorrhagic. The smallest of these glands measures about 5 mm. in length, and shows cortical hemorrhages. A similar condition of the glands on the left side of the neck is found, but the process is not as far advanced. The circumvallate glands of the tongue are swollen, uniformly injected, and covered over by a large amount of mucus. The tongue is brown in the center, and its borders are pale. Microscopy: Smears from the left femoral glands above referred to, the spleen, the lingual mucus, and deep cervical glands show a few pestlike organisms. Probable cause of death, bubonic plague.

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THE LANE MEDICAL LECTURES.

The Lane medical lectures for the year 1902 were delivered by Mr. Charles B. Ball, regius professor of surgery in the University of Dublin. These lectures were very satisfactory. The subject matter was well prepared, and embraced a full and complete knowledge of the subject. Several are worthy of special mention, especially that on tumors and malformations, piles, fissure, and, possibly above all, the clear and able presentation of the anatomy of the parts under consideration. The line of demarcation of skin and mucous membrane was beautifully demonstrated, both by word and the artist's aid, and dwelt upon emphatically as an area particularly liable to disease. The blood supply and its bearing on pathological conditions in this locality was handled in a manner fully commensurate with the importance of the subject. The so-called valves and the many fallacies attached to these were given thorough consideration. The general treatment proposed was conservative, and known to be satisfactory; the operative was noted for its simplicity and excellence of results in every particular; that for malformations, piles, fissure, and prolapse deserves high commendation.

The speaker's delivery was fair and impressive, and much praise must be accorded him for not using manuscript. He held the attention of his audience throughout, which was as large and as appreciative as any in the history of the course. The illustrations were excellent, and many of the best original. Especially prominent were those showing malformations and the anatomy. Altogether this course was one of the most fruitful of general good, the most practical and enjoyable of the whole series.

THE PLAGUE STILL MANIFEST.

During the thirty days of the month of September ten cases of plague have been added to the list, all of the bubonic form, and affecting in many instances the glands of the neck, which shows that the food products, probably the fish markets, are a source of contagion. In this issue the post-mortem reports of four cases are given, and the list will be completed in our November number. The total number of cases is therefore 81, and nothing of a practical or protective nature is being done by either state or nation. The Marine Hospital and Public Health Service is notified promptly as the cases occur, the State Board of Health is immediately informed of a death, and usually has a representative present, who is supposed to state the facts; while the local board is at the mercy of a mayor and a governor, who scowl at the mention of their existence. Our only appeal therefore is to the health boards of the country at large and the possibility of the election of a governor whose honesty will rise above the dictations of politics and money to the welfare of our people and that of the other states of the Union. The following is a list of the cases, whose post-mortem results are to be published:—

73. September 9, Chin Mon Tung Shee, age 33, female, 40 Fish Alley.
74. September 11, Ng Chew Ho, age 25, male, 730 Washington Street.
75. September 16, Lau Hock Ching, age 58, male, 742 Washington Street.
76. September 16, Chin Hong Mon, age 47, male, 800 Washington Street.
77. September 20, Lee Gong, age 48, male, 10 Waverly Place.
78. September 23, Huie Chong Bow, age 36, male, 808½ Sacramento Street.
79. September 23, Gam Fong, age 51, female, 904 Dupont Street.
80. September 26, Chin Kung Poo, age 39, male, 19 Prospect Place.
81. September 26, Hoo Chung, age 38, male, 1018 Stockton Street.

SOCIETY PROCEEDINGS.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting July, 1902.

The president, Dr. D. W. Montgomery, in the chair.

GONOCOCCAL PERITONITIS.

Dr. J. Henry Barbat read a paper with this title, which was published at page 377.

Dr. J. Henry Barbat: I admit that the bacteriological examination was rather incomplete, but nevertheless went to prove that the case was due to the gonococcus. Dr. Ryfkogel, in his report to me, felt certain that the cocci, from their appearance and staining qualities, were undoubtedly the gonococcus. Cases of this character should be a warning to us to not place too much faith in the harmlessness of old pus, whether it be gonorrheal or otherwise, when it is confined in the Fallopian tubes.

GASTRO-ENTEROSTOMY AND THE MURPHY BUTTON.

Dr. F. B. Carpenter reported a case of gastro-enterostomy, with a long period of retention of the Murphy button.

Dr. E. E. Kelly: I have just finished reading an article by Czerny's assistant regarding these stomach operations for benign tumors of the stomach, and looking over the summary I was impressed with the long residence of the Murphy button, and case after case where the Murphy button has not been passed. I don't know the longest time, but some have never been found.

Dr. T. W. Huntington: Referring to the Murphy button, I have practically abandoned it as a usual method of anastomosis. The advantages claimed for it seem to me to be measurably offset by its disadvantages, namely, a foreign body within the intestinal canal, local tension exerted upon bowel structures to such an extent as to interfere with nutrition of the viscus, the possibility of the button falling into visceral cavities, thereby finding permanent lodgment.

While time may be saved as compared with the application of sutures, the discrepancy is not sufficiently marked to establish the merits of the button over the suture. My own preference is strongly for the Connell method, which rests its claim for recognition upon the through-and-through mattress suture, with the knot within the lumen of the bowel.

Dr. Dudley Tait: I desire to call attention to a matter of technic—the use of Allis' clamps and Michel's metal staples for sutures of the intestines. The staples do away with stitches. They have been used on dogs, and Chaput, of Paris, used them exclusively in three gastro-enterostomies on man. Chaput considers them perfectly safe.

Dr. Dudley Tait: Connell never claimed originality for all the steps in the suture.

Dr. A. E. Taylor: In connection with the matter of the feeding of patients directly after operation upon the stomach, I wish to call attention to subcutaneous alimentation. It is safe, feasible, and easy to inject three or four hundred c. cm. of a foreign blood serum per day. Such injections have been done often enough in tetanus and other diseases to have shown the harmlessness of the procedure. According to our present knowledge, the protein in the injected serum becomes a part of the common circulating protein, and as such is available for purposes of metabolism. The subject develops a certain degree of specific reaction to the blood serum of the animal employed, but this factor has no nutritional relations. Untoward arthritic effects may occur; they are, however, of no serious import. It is furthermore possible to inject a hundred grams of melted butter into the body and have it absorbed. One ought easily to be able to supply almost full nourishment for a period of, say, ten days. The asepsis of the injections would be the only consideration. A further advantage of the procedure would lie in the absence of the peristalsis which is incited by colonic injections.

Dr. J. Henry Barbat: I still maintain that the Murphy button in cases of this kind is very much superior to the suture, no matter how well placed. Dr. Huntington reported some time ago a successful case of gastro-enterostomy by means of the button and one by the use of suture, which died, showing the superiority of the button. I have been able to follow a number of cases in which the button was not successful, and in every one there was either some fault in the technic or the button was defective. If the purse-string stitch is not properly placed, the mucosa may not be all turned in, and death will certainly supervene. If the compression spring is not sufficiently strong to completely cut off the circulation, we will not get a necrosis of the tissues in the bite of the button, and it will not pass. I saw two cases in which the silk used to draw the gut over the button was cut so long after being tied that the ends protruded between the two portions of intestine, and the buttons did not pass. I have operated on a number of patients who could not have stood the extra time necessary to use sutures, especially when the Roux operation of gastro-enterostomy is done. There is no necessity for the button to get into the stomach; we have buttons in which one side is larger in diameter than the other, and if the smaller portion is placed in the stomach the button can only go one way.

Dr. Rixford: I have not the greatest confidence in the Murphy button, having had a rather unfortunate experience with it. In one case after an anterior gastro-enterostomy, following pylorectomy for carcinoma of the pylorus, the button was retained in the stomach for two years. The patient was operated on by Dr. Brigham, at St. Luke's Hospital, for recurrence, but died next day, when at autopsy the Murphy button was found in the stomach. In another case I used the button in uniting the gall bladder with the small intestine in a case of carcinoma of the head of the pancreas. The button was never heard from, though in neither case was it probable that the button caused any trouble whatever. In two other cases of intestinal anastomosis, one between the small intestine and the caecum, there was leakage, with temporary intestinal fistula. I have not altogether given up the Murphy button, however, and have recently used it in gastro-enterostomy with perfect satisfaction in two cases. I would say that I shall continue to use it in cases where there is need for haste in bringing an operation to a close, and in places where it is awkward to use suture. In general, however, I would say that in my hands the suture has been safer and more satisfactory.

Dr. Dudley Tait: It may interest Dr. Barbat to know that the button has been almost abandoned in its own home, where it has been largely supplanted by the Connell suture. By using the Reverdin needle and Allis' basting clamps, the operation may be done as rapidly as with the button. The Reverdin needle made in this country is entirely too large for the purpose. By a simple shifting the complicated or last step of the Connell suture may be avoided.

Dr. J. Henry Barbat: I have used the Murphy button in a number of cases, and I feel certain that none of them died because the button was used, as no case of peritonitis occurred, and in all that died the site of anastomosis was found to be perfect. When gangrene of the bowel occurs after the use of the button, it is due to the fact that the operator failed to look after the blood supply of the cut end of the gut, and is not due to the presence of the button. I have my Murphy buttons made to order, because the ones generally found in the shops are usually defective, the springs being too weak. When the button is pressed in place, the mucous and muscular coats of the bowel are crushed out from between the jaws, leaving the fibrosa and peritoneum. The microscope shows that the anatomical result obtained by the use of the Murphy button is more nearly perfect than that obtained by any other method.

Dr. Dudley Tait: I had the pleasure of assisting Dr. Sherman in a post mortem on a dog where the Connell suture was used several weeks previously by Dr. Huntington. A most careful inspection of the intestine failed to show the location of the end-to-end anastomosis. The mortality in gastro-enterostomy by suture, in the hands of Terrier and Hartman, has decreased in the last four years from 17 to 11 per cent. Another point which has not been mentioned in the disadvantages is the impossibility of obtaining a long line of approximation between the stomach and intestines. In some cases this feature is absolutely indispensable, in order to avoid the recurrence of a vicious circle.

Regular Meeting August, 1902.

Dr. T. W. Huntington, in the absence of the president, presided.

FAVUS.

Dr. Terry presented a case of favus of the scalp in a child 13 years of age. It was a typical case of long standing. The disease is not common in this part of the country.

Dr. Morrow said, in discussion of the case of favus, that it was a typical case getting well. The great amount of scarring was typical of favus, which produces a permanent alopecia. The opposite condition occurs in ringworm. He had taken a few scrapings in the morning from the case, and on examination found the fungus of favus present. The history of the case was indefinite. If these cases are taken early, it is possible to produce a cure in perhaps from four to six months, but in a case like this, where there are very many patches, it would take longer to make a permanent cure, because of the fungus remaining around the roots of so many hairs. Probably this boy could be cured in a year under proper treatment, but when cured he will have at least as large an amount of scar tissue in the scalp as he now has. The treatment commonly used consists of the application of a combination of tar and mercury, in the form of ammoniate of mercury or nitrate of mercury 3 per cent, in an ointment containing 20 per cent tar. During the last two or three years they have been using the X-ray, on account of its parasiticide powers and on account of its tendency to produce falling of hair. In regard to the prognosis, it is generally favorable, but when the disease becomes very extensive, the probable time required for cure must be put down in years rather than in months.

Dr. Terry called attention to an old trephine opening in the skull. A clear history can not be obtained from the boy, though he says he had a fall, but does not remember when or how. At the site of the trephine opening the pulsation of the brain is still visible.

CHANCRE OF THE GUM.

Dr. Morrow presented a case of infection of the gum of the lower jaw. He saw the patient at the clinic a month or so ago, very early in the disease. Since then the sore has developed into an ulcer at the border of the gum and teeth, and now looks more like a typical syphilitic sore. Glands under the jaw became markedly hard and swollen. After a week or so the posterior lymphatic glands became enlarged, and the patient suffered from severe headaches. The fact that the glands did not go down when the ulcer was properly treated was enough to make a diagnosis of primary syphilitic infection. On account of there being a possibility of doubt in diagnosis, specific treatment was not given until yesterday, when, on examination, there was found a diffuse red papular rash. The case is a rare one, as a primary infection of the gum is very unusual.

TUBERCULAR ABSCESS OF THE LIVER EMPTYING THROUGH RIGHT BRONCHUS.

Drs. Philip King Brown and Dudley Tait reported a case and exhibited specimens of a case of tubercular abscess of the liver discharging through the right bronchus.

Dr. Ophuls said, in discussing the specimen shown by Dr. Brown, that the process was certainly a rare one. Usually tubercular lesions of the liver were very limited in extent; that he thought one of the first to call attention to large tubercular lesions of the liver was Professor Orth, of Gottingen, who published a case of multiple conglomerate tubercles of the liver in Virchow's Archiv. He remembered having read some criticism of this article to the effect that Professor Orth was mistaken in his diagnosis, and such lesions of the liver really did not occur at all; that the lesions described were gummatous, not tubercular. However, now this uncertainty did not exist any more, since in similar lesions tubercle bacilli had been demonstrated. He said that he had never heard and had never read of a case of tubercular abscesses of the liver, and that they were something entirely new to him. It was also very interesting that this abscess of the liver seemed to have been produced by a simple infection with tubercle bacilli; if he understood Dr. Brown right, no other bacteria were found on first opening the abscess, neither in cultures nor in coverslips. Later, of course, mixed infection arose, and, following that, gangrene. As far as the development of the tubercular process goes, it seems very difficult to form any opinion where the tubercle bacilli entered the body in the first instance, and how they arrived ultimately in the liver. It might have been that the peribronchial lymph glands were first involved, and that from there through the posterior mediastinum the process had extended into the abdominal cavity.

Dr. Huntington asked if syphiloma of the liver could produce a condition analagous to this.

Dr. Ophuls had never heard of syphiloma breaking down in this way.

Dr. Dudley Tait: The French authors have given considerable attention to tubercular abscess of the liver. Lannelongue gave a complete description of large tuberculous abscess of the liver as early as 1889, in a communication to the Congress on Tuberculosis. His description was reproduced and completed by Gilbert in his work on the liver. I have seen two specimens of tuberculous abscess demonstrated by Cornil, of Paris. The case presented this evening would seem to confirm what we see in laboratory in reference to experimental production of tuberculosis. We know that an intraperitoneal injection of virulent tubercle bacilli in the guinea-pig will produce miliary tubercles in the liver. On the other hand, an injection of attenuated culture (aviary tubercle bacilli) will be followed by suppurative hepatic lesions. Likewise the virulent bacilli produce tardy suppurative lesions in very refractory species. In our case the long history of tuberculosis and the disappearance of the peritoneal tubercles prove a marked resistance to an undoubtedly attenuated infection. The French authors demonstrated the possibility of cicatrization of tuberculous cavities in the liver. The firm and healthy granulations in our case led me to expect a like result. The pus of hepatic abscesses is generally considered sterile, and we do not expect that it could differ from that found in old tube cases or in old joint infections, which most always prove sterile. Two months ago, however, Gilbert showed that the so-called sterile pus of hepatic abscess developed numerous colonies on media suitable for anareobic bacteria. I would call attention to the advantage of a liberal lateral incision in exploring the convex surface or the right lobe of the liver, the most frequent site of abscess.

Dr. Quinan (discussion after Dr. Brown's paper): It seems to me that it has not been demonstrated that the only infective agent in the case was the tubercle bacillus. The tremendous amount of connective tissue present suggests a reaction to the powerful toxins of streptococci or staphylococci. This may have been originally an abscess formed by pus cocci, in which tubercle bacilli were implanted. The bacterial examination appears to develop the fact that there were no pus cocci associated with the tubercle bacilli at the time of the examination. It is, however, a not unusual thing to find sterile pus in the liver. We have to assume that the cocci, not finding proper nutrition, have passed into the resting stage. We know that the conservative efforts of the animal body create an enveloping capsule, which limits the growth and development of invading bacteria, and the connective tissue apparently is very resistant to the bacterial toxins, the cells being perhaps the most resistant in the human body. It is probable that the bacteriology, and perhaps the chemistry of these abscesses is not yet properly worked out.

Dr. Brown: I do not know that it can be stated with any definiteness whether the tubercular peritonitis or the lung and bronchial gland tuberculosis was the initial process resulting in the infection of the liver. The peritonitis seemed to me to be recent enough to be associated with the liver process in this case. There can be only a supposition in the case, and the extensive involvement of the bronchial glands suggests an earlier origin of the tuberculosis there. The absence of the general extensive tuberculosis of the lungs, except along the tracks of the discharging sinus, seems to me to be pretty good evidence that a lung tuberculosis was not the primary trouble. In regard to the formation of connective tissue by toxins of tuberculosis, I would instance the connective tissue formation in tuberculosis of the kidney. I have seen connective tissue 5 to 7 cm. in thickness around a tuberculous kidney bringing the mass in the flank on a level with the vertebral column as a result of new connective tissue formation. I have never seen and never known of such connective tissue formation from other micro-organisms. In regard to a staphylococcic origin of the abscesses, however, the absence of positive evidence of their presence from cultures and coverslips made at the time that the abscesses were opened is the strongest evidence that they never had been there, and were not at the time of the operation; furthermore, there was no fever; furthermore, it is the rule in tubercular abscesses that the process undergoes such a course as was the course of this process, and still further, tubercle bacilli were found on coverslips made at the operation. Tuberculosis of the kidney gives a typical picture microscopically of the conditions present in this case. The sections from the autopsy are here for your examination, and they show typical tubercles with the giant cells, and, while they have not been stained for tubercular bacilli, they give sufficient evidence of the abscesses being tuberculous in character.

The microscopical examination of the liver revealed an extensive, diffuse, interstitial process not apparent macroscopically. There were slight interstitial changes in the kidney, and beside the extensive amyloid change in the spleen there were diffuse necrotic areas in the few parts already referred to. The existence of a cirrhosis of the liver in a patient who had neither clinical nor post-mortem indications of syphilis, a man scarcely 30 years of age, who certainly had not used alcohol extravagantly, would seem to point to a tubercular origin of the cirrhosis. This certainly is a rare occurrence, and yet there seems no other possible explanation in the case. The extensive gangrene in the liver in the parts unaffected by tuberculosis prevented a careful study of the cirrhotic process. Tubercular abscess of the liver is never primary, but dependent upon some focus elsewhere, and most commonly in the bowel. In the present case it is quite probable that the abscess dated from the occurrence of the tubercular peritonitis two years before.

Dr. Terry (discussion after Dr. Brown's paper): This recalls to my mind a case that I saw at St. Luke's Hospital, a man with tuberculosis, who came to the hospital in a rather late stage of the disease, who expectorated large quantities of bile. The bile measured, with the mucus and sputum, over thirty ounces in twenty-four hours. He died shortly afterward, and at autopsy a large fistula was found communicating from a bronchus to one of the bile ducts in the liver. There were numerous tubercles in the liver and several small abscess cavities, but none larger than a walnut. The abscess cavity that led to the fistula into the lung was fully the size of a walnut and lined with old granulation tissue.

TRANSPLANTATION OF THE RECTUM.

Dr. Emmet Rixford reported a case of transplantation of the rectum. The patient, aged 36, had been operated upon ten years before by Dr. Parks, of Chicago, for cicatricial stricture of the rectum. An artificial anus had been made high up in the median line between the buttocks opposite the fourth segment of the sacrum. This after eight operations had been performed by other surgeons at the site of the stricture. The artificial anus permitted the rectal ulceration to heal, and after four or five weeks the patient was comparatively well. The relief from the former condition was so great that she thought nothing of the discomfort of keeping herself constantly constipated and wearing a napkin, etc., etc. After a time the bowel prolapsed through the artificial anus and produced a condition which was very distressing. The edges were now and then ulcerated, causing considerable suffering. The patient stated that the gut prolapsed six or seven inches whenever she stood up, and that she would have to lie down several times a day and press the prolapsed bowel into place. By keeping herself continuously constipated, she was able to keep the parts reasonably clean. A surgeon cut away the prolapse, stitching the upper part of the bowel to the skin wound. It healed kindly, but in a few weeks the prolapse recurred, and the patient consulted the writer.

On examination a prolapse of three inches was seen between the buttocks, covered with glairy mucus, and presenting around its attachment to the skin several ulcerated patches. The artificial anus was about one and a half inches in diameter. Patient states that the ulcer was due to chafiing against the buttocks during a long ride in a wagon when she was coming to San Francisco. The artificial anus was about one and a half inches from the anus proper. The latter appeared as a cup three-fourths of an inch deep and about the same diameter. It was noticed that the patient had voluntary power of contraction of the sphincter muscle, and with considerable force. The center of the cup was made of thin, smooth, cicatricial skin, and was movable. The anal ring was imperfect on the left side, evidently where a fistula had been cut and where there was a smooth cicatrix. It was proposed to restore the bowel to its normal position, in the hope that the sphincter muscle would be sufficiently active to give her control of the bowels.

July 9, 1901, the cicatrix in the center of the sphincter muscle was excised, the sphincter stretched, and the connective tissue between the vagina and the backbone was dissected loose. The artificial anus was circumscribed and the prolapsed gut freed. Because of the history of a considerable portion of gut having been removed, it was evident that the peritoneum and the mesentery were present in the prolapsed portion. Therefore the peritoneum was opened and search made for the mesentery, which was readily found adherent to the upper part of the ring. A few ligatures at this point sufficiently loosened the gut to permit of its being straightened out to the extent of six or seven inches, without interfering with the circulation in its periphery, as shown by free bleeding. The levator ani muscle was then slit and the gut drawn down through the perforation, which was made large enough to avoid future stricture at this point. The gut was drawn through and out of the sphincter, suitably trimmed, and fastened in place by several deep catgut sutures, the mucous membrane being accurately approximated to the skin in the anal ring. The posterior wound, which, as said above, opened directly into the general peritoneum, was simply packed with sterilized gauze. Both wounds rapidly healed, and at the end of two weeks a second anesthetic was given and a section of the anal ring removed, in order to do away with the scar tissue at the point of the operation for fistula and in order to complete the circle with active muscle.

Patient left the hospital at the end of a week, having been in the hospital altogether seventeen days. By this time she was able to control movements of the bowels, except after taking physic.

In March, 1902, nine months after operation, patient wrote that she had been perfectly well and had practically complete control of the movements of the bowel; she was no longer obliged to wear a napkin, and had no longer to give attention to her diet in order to maintain a condition of constipation.

The chief interest in the case lies in the suggestion that, for cicatricial stenosis in which the sphincter muscle does not participate, operative removal of the cicatricial tissue, followed by a drawing down of the gut and implantation within the sphincter, would be a satisfactory solution of the problem. In this particular case, however, the ulcerative process had not altogether ceased at the time of the making of the artificial anus, and it is probable that the making of the artificial anus was the best thing that could have been done. It was interesting to note the persistence of the power of active contraction of the sphincter muscle after disuse for ten years or more, and after not less than one operation in which the sphincter was cut. Prolapse is pretty certainly guarded against by the opening in the levator ani muscle, to which doubtless the gut became adherent, and which to a considerable extent formed a second sphincter. By digital examination the edge of the muscle could be felt at the time the patient left the hospital, and made a ring about the gut of sufficient size to insure against future cicatricial stenosis at that point.

BURSITIS OF THE ISCHIATIC BURSA.

Dr. T. W. Huntington presented a pathological specimen in the shape of an enormous cyst, accompanying it with the following history:—

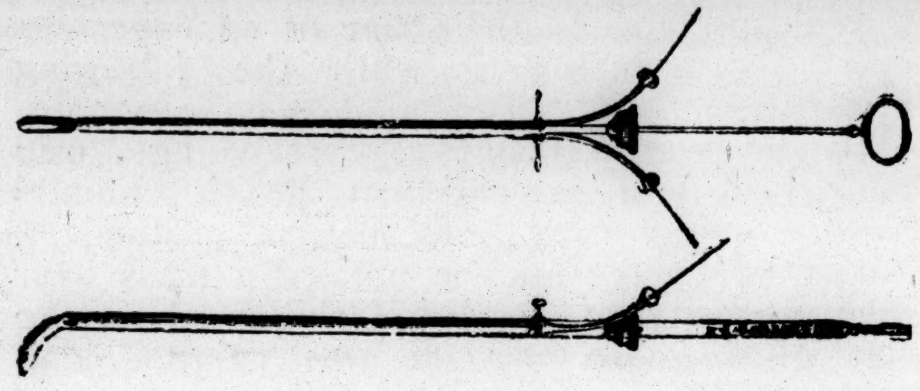
Patient was a man 53 years of age, well nourished, and in excellent health. Family history unimportant. Occupation, postmaster. About two years ago he noticed a mass over the tuberosity of the left ischium, about the size of a goose egg. It was painless, and gave rise to no symptoms worthy of mention. Four months ago, without special cause, it became rapidly enlarged, extending down the thigh to the popliteal space. The distension was marked and the deformity very noticeable.

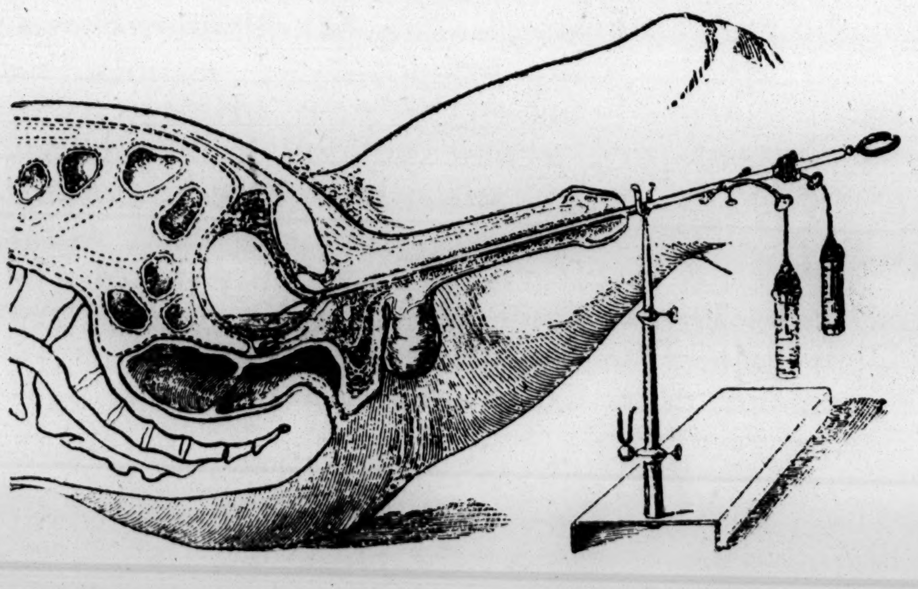
I saw the case on Aug. 14, 1902. The tumor was irregular in form, constricted at the gluteo-femoral fold, and clearly fluctuant. An aspirator needle was passed and a small amount of decomposed blood was withdrawn, which was found to be sterile. Two days later I made a free incision, and found the fluid contained in a well-organized cyst. This was carefully dissected out through an incision extending from the tuberosity of the ischium to the popliteal space. It was found to contain sixty-one ounces of fluid. The constriction at the gluteo-femoral fold admitted the passage of two fingers only, giving to the cyst an hour-glass or fish-bladder shape. From the opposite tuberosity I removed a small encysted mass the size of a walnut, which contained a pale yellow, homogeneous mass, probably an organized blood clot of long standing.

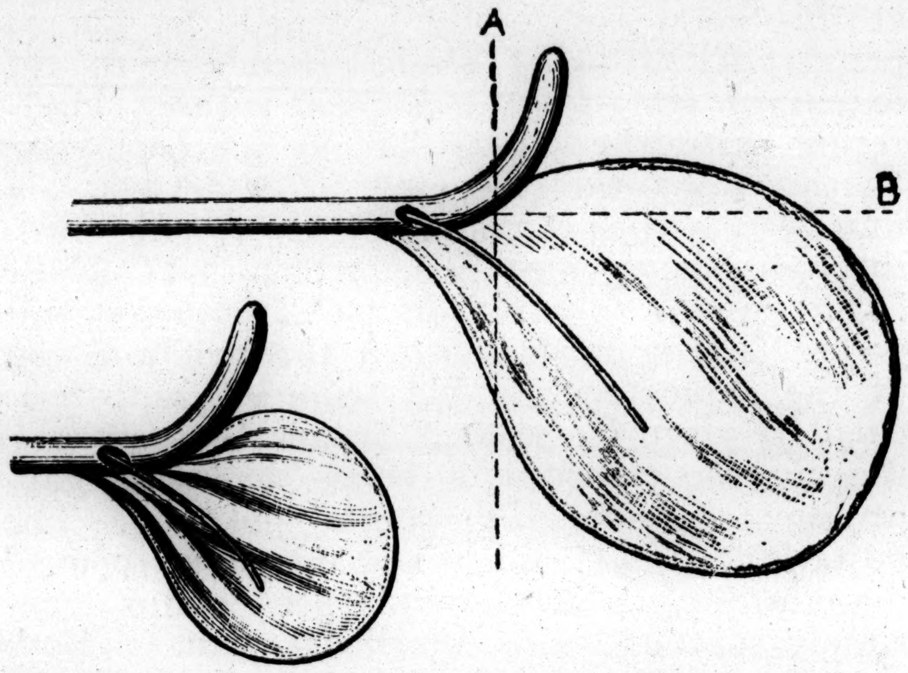
The case is clearly one of bursitis of the ischiatic bursa, into which had emptied an open blood-vessel, with the production of the distension noted above.

EXHIBITION OF INSTRUMENTS.

Dr. Dudley Tait (exhibiting instrument): The instrument I have the pleasure of showing is one invented by Cathelin Guyon's clever assistant in the genito-urinary clinic at Necker Hospital, in Paris. The purpose of the instrument is to divide the bladder in such a manner as to collect the urine from each kidney separately, thus doing away with ureteral catherization, which, even in clever hands, has not become popular, practical, or devoid of danger. The simple fact that this instrument was invented in the clinic of Necker, where some of the best ureteral work of the world is done (Albarran), is evidence of the inefficiency of ureteral catherization. The principle upon which it is based is the development inside of the bladder of a rubber curtain to which the viscus adapts itself. It is founded upon physiological rather than anatomical principles. The instrument corresponds in size to the No. 25 French sound. The capacity of the bladder having previously been determined, the instrument is introduced and the neck well secured against the pubic arch. The curtain is then developed. This will be in immediate contact with the bladder until the limit of tension is reached. The catheters are then introduced into the small tubes to the side of the instrument. Their point of exit is in the posterior urethra, and they are made to enter the bladder one or two centimeters, according to the capacity of the bladder. The end of each catheter is then adapted to the small glass tube held by a contrivance on top of the instrument case. The apparatus works automatically; no suction is required. Preliminary washing of the bladder and the removal of the injected water are necessary before the test is begun. Fifteen or twenty minutes suffice to obtain the required specimens of urine. The entire apparatus can be disinfected by boiling. Cathelin and several others have demonstrated the complete division of the bladder by means of this instrument. In nephrectomy cases not a single drop of urine was obtained from the operated side. In renal hematuria and in pyonephrosis the results (chemical and microscopical) were invariably confirmed at autopsy or operation. In cases of renal tuberculosis the functionating power of each kidney was easily determined and a very accurate knowledge of the organs obtained. In one case an abscess was diagnosed on the right side and only slightly-advanced lesions in the other kidney; the autopsy showed an immense pyonephrosis on the right side and small miliary tubercles on the left side. Legueu used this apparatus to prove the bilateral origin of albuminuria in a case upon which he was about to make a nephropexy, and which he consequently transferred to the medical ward. Cathelin showed how easy and safe it is to use his instrument in cases of contracted or irritable bladders or in cases of hypertrophied prostates. Legueu used this instrument in a bladder of only 18 cc., without causing pain. Cathelin has done some interesting work in reference to the unilateral origin of albuminuria, a condition which Israel first described. With a safe and accurate instrument such as that proposed by Cathelin, the field for original research, especially in medical nephritis, is very broad and extremely interesting. Lambotte, of Brussels, was the first to propose segregation of urines by division of the bladder. (Annales de med. et chir. du Cercle d'Etudes med. de Bruxelles, 1891, page 47.)







BOOK REVIEWS.

Electro-therapeutics, radiography, thermo and hydro-therapeutics are practically and thoroughly covered in the *Journal of Advanced Therapeutics* (800 pages, issued monthly, $3.00 per year).

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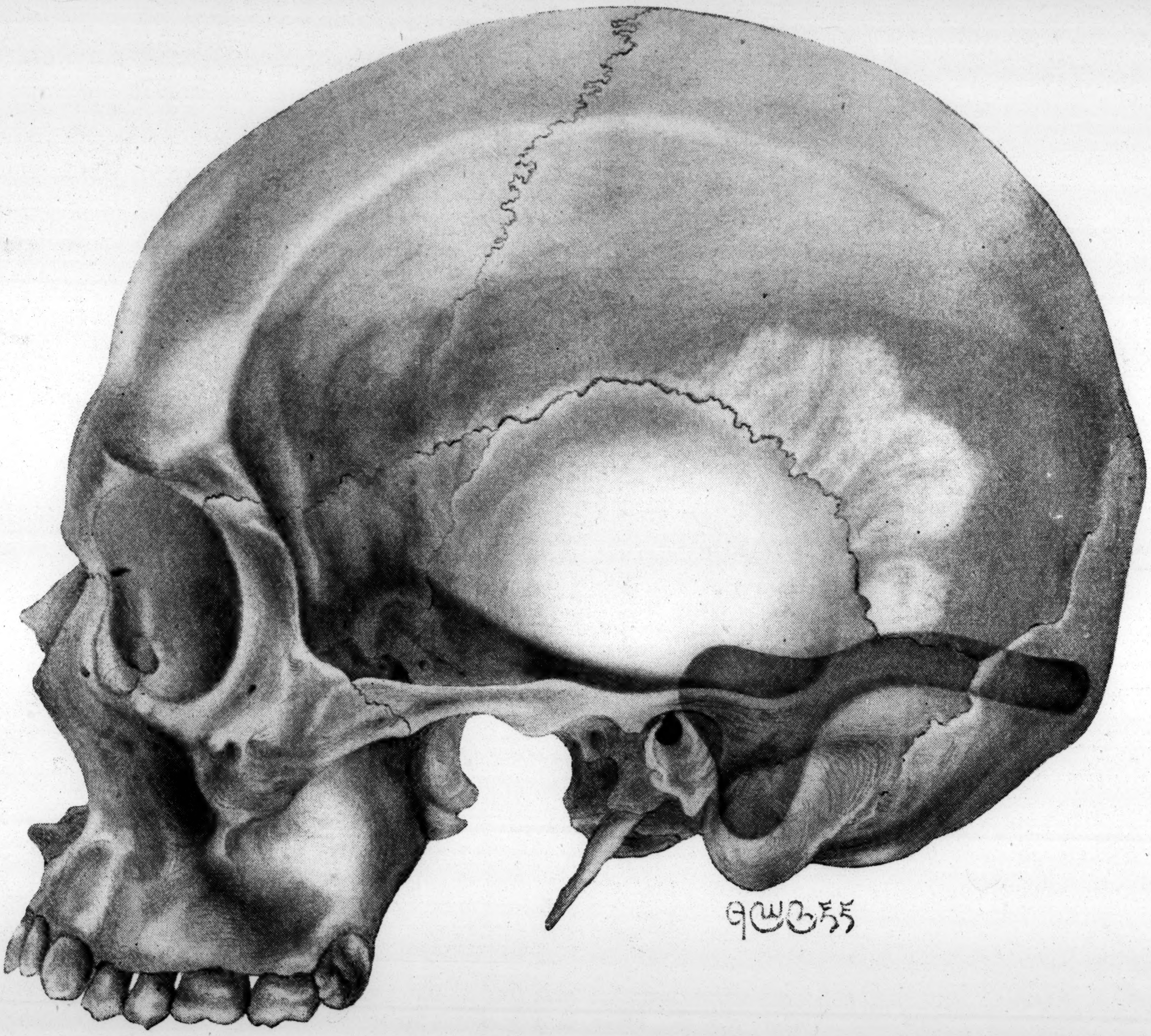

FIGURE 1

ILLUSTRATING DR. POWERS' CASE OF RARE ANOMALY OF THE LATERAL SINUS

Topographical relations of the sinus with special reference to McEwen's triangle and the fossa mastoidea